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American Railroad Journal.

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Saturday, October 29, 1853.

Railway Equipments.

The English railways have adopted some very important improvements in their equipments, which it is for the interest of our railroad people to examine. In axles particularly, and in the method of manufacturing them, we believe the English forges have gone to the perfection of workmanship. Always careful in the selection of their material, where furnished for such specific purposes, they have carried out the principle of faggotting their axles to the greatest necessary extent. For instance at the Brunswick Iron Works, Wednesburg, England, each axle is made of from fifteen to twenty faggots, each faggot being made from eighteen pieces of iron laid in a pile, and drawn out in a segmental form. Here are from three hundred to three hundred and sixty pieces in one axle, each of which is purposely prepared to fit to the rest. The Hudson River road, who have taken much pains in the selection of their equipments, have some of those axles in use, all of which will probably *wear out* before they *break* or fail in any respect. Such a process of manufacture is an improvement of the most important kind, not the result of an exercise of ingenuity merely, but of a faithful adherance to the correct principles of such work, viz: a thorough and intimate blending of the material equally strong in any direction. By this, one great end of the manufacture of iron is attained, which is *uniformity* of material and structure, without injury to the original stock.

The same establishment referred to above, manufacture a hollow axle of the most perfect description, and by a process which would surprise even those accustomed to working in iron. A hollow cylinder from two to three feet long, a foot in diameter, and three or three and a half inches thick, is formed from faggots of Z shape, lapped upon each other. These are first welded throughout the thickness of the cylinder, and afterwards drawn out by hammering the *outside* only. The principle of the arch, by which each faggot sustains a place in the cylinder and contributes to the strength of the whole, gives this result, that hammering only the *outside* reduces the interior in the *same proportion*. For instance, the original cylinder of twelve inches outside and seven inches inside diameter, becomes reduced to four and a half inches outside, and two and a half inches inside diameter, without having any spindle or core in the center of the axle. And the uniformity of thickness attained by this process is remarkable. We have seen a section of one of these axles, finished by this process, in which throughout its length, the thickness was as uniform as if the interior had been formed on a straight and polished spindle. After the tube has been thus *drawn*, throughout its length, a pin is placed in each end and the journals hammered down to the proper size. The cross section of these axles shows the shape of the faggots, like double angle irons, overlapping and forming the cylinder. The lightness, strength and uniformity of structure and material of axles made by such a process is another great improvement.

The same works manufacture also a tire for engine and carriage wheels, in which the tread for a depth of more than an inch is made from extra double refined Russia iron, and is nearly as hard as steel. These tires weld equally as well as ordinary tires and the tread does not laminate and separate from the rest, as the two descriptions of iron weld together with facility. The extent and character of the Russia Iron tread is well shown in a section of one of these tires by rubbing oil of vitriol upon it, when effervescence immediately commences upon the softer part of the iron or inner side of the tire, and the weld is plainly distinguishable. Such tires are especially reliable from their hardness and uniformity.

The self-adjusting switches made by split or scarfed rails with steel edges are also much used by some of the English roads.

Another improvement which has been adopted extensively in England, to obtain the continuous character of the compound rail without involving an entirely new superstructure, is the method of bolting side strips, 20 inches or two feet long, on each side of the rail, through and through, at every joint. This has been called *fish jointing*, from its resemblance to *fishing* a spar at sea. The results attained by this process on the Eastern Counties line, induced the London and North Western, and the Midland railways to purchase the right for their entire lines, and the Permanent Way Company, who hold the right for the improvement, are introducing it on many of the other lines in England.

None of the improvements which we have noticed are experiments, made only to acquire a short lived fame, but are occupying a prominent position in the equipments of English roads. The improved forms of axles, tires, and rail connections which we have noticed are generally adopted by the Great London and North Western and Midland railways, two lines whose united lengths are 1051 miles, all double track, and whose engines numbering 780, are of the greatest power and weight. The demands for the great first-class travel in England, have perfected the rolling stock and equipments beyond any thing that has been introduced into our own country.

We are happy to learn that the proprietors of the greater part, if not of the whole of these improvements are now represented here through the agencies of the Brunswick Iron Works, the Permanent Way, and other companies, and that these equipments can be generally supplied at about the cost of our ordinary equipments. The address of the Brunswick Iron Works Agency will be found in our advertising columns.

"Novelties," New and Old.

"Novel Locomotive.—There has just been completed at South Boston, a locomotive called the "Texas", constructed on a most novel design, and intended, it is thought, to work an entire change in the manner of making locomotive engines. It weighs about thirteen tons with the tender which is connected with it, the boiler and tank being placed on the same frame. It has but four wheels, and those are hollow drivers, and are placed one pair in front of the boiler, and one pair under the tank. The cylinders are 12½ in. diameter, and are outside connections. The power, instead of being applied directly to the drivers by connecting rods as is usual is applied to the top of an upright beam placed just in front of the fire box on either side of the boiler. From the top of this beam, which moves about 15 deg. on a heavy pivot, runs a rod to the back driver, and from the bottom runs a rod to the front driver. The boiler sets quite low, while the tank hangs below the wheels. The link is also of most novel construction, and is said to be a most important improvement, the link working within the block, instead of the block within the link. As no patent has been taken or is intended to be taken leave has already been given other manufacturers to adopt this link, and it will probably come into general use.

"The advantages derived by the novel construction of the locomotive, are the ease with which great power can be applied, and the great gain made in bringing the whole weight of the engine and tender to aid in drawing a heavy load. It is said that a thirteen ton engine, built on the new model, can do the same work as a twenty ton engine, built so that the power is applied to the drivers at the fire box. The result will of course be a great diminution in the expense of procuring motive power for our railroads. The design as we have before remarked is wholly original, nothing of the kind ever having been attempted before.

"The locomotive just completed is for a road in Texas. There is also in process of construction four others after the same model, intended for a road in Pennsylvania.

"On Saturday, with a view of testing the capabilities of the engine, "Texas" was attached to a heavy freight train consisting of fourteen long cars. It drew them with the greatest ease from South Braintree to Boston making the time alloted to the train to a second. This train, which is one of the heaviest on the road, is usually drawn by a twenty-five ton locomotive. The result of the experiment is deemed conclusive that the locomotive will prove in every respect successful and that a twelve ton engine can when built after the new plan, do the work of a twenty ton engine of the old model."

The above will do very well for a *novelty*—, but as "an *improvement*, or as likely to work an *entire change* in the manner of making locomotives" its claims deserve no attention. It possesses the novelty of complication, besides the disadvantage of an extravagant length of wheel base; the entire weight of the engine being on two pairs of drivers 16 feet apart. The four engines of this kind, for the Cumberland Valley Railroad, in Pennsylvania, will probably encounter some sharp curves, which, but for the protection afforded by the chilled driver, would subject the flanges to very severe wear.

The tank-engine, or combined engine and tender, is an arrangement in no ways demanded for the working of American roads; except in the case of a very few, running very light trains. The purpose of the tender is to *relieve* the engine of excessive weight, while the *weight* of the tender neither has nor can have anything to do with drawing the load, even if acting in connection with the drivers. To load the engine with this weight implies a fear that the adhesion of the engine will not equal its ordinary traction, or steam power, while this fear ought to be forgotten so long as the truck frame is in universal use. It is notorious that the majority of our most powerful and efficient engines employ but from two thirds to three fourths of their adhesive weight for propulsion, the rest being *carried about* on a truck.

"*Substitute for the Turntable.*—Joseph Dunn, of Durham, England, is now exhibiting at the Crystal Palace, a model of railroad track, car and switches for reversing locomotives. The *Scientific American* describes it as having tracks, branching out from the main track, and at suitable distances from each other, meet in a single track, the length of locomotive. The car passes out by one track and returns by the other reversed. The switches are placed near each other, so that they may be operated by a single man, and are kept open for the main track by springs, except when the reversing is made. This plan is new to many of our readers and will readily recommend itself for efficiency and cheapness."

This is a particularly antiquated idea, and while its prineiple has been long understood, it cannot be generally used on account of the time and room which its operation requires. For an engine house holding from 12 to 20 locomotives it would cost more than a good turntable, while the complication of its tracks, and the endless intricacy of the movements in getting through it would entirely preclude its use. The engine house of the Baltimore and Washington road at Washington is the only instance we have ever seen of its application for the express purpose of turning engines, while its use is there confined to but two or three locomotives.

Railway Axle Lubrication.—Mr. W. Bridges Adams, of London, lately read a paper before the Birmingham Institution of mechanical engineers, in which he alludes to the ordinary mode of greasing practised in England, and describes a box invented by himself as an improvement, which is essentially the same as the Lightner Box so generally in use in our own country.

India Rubber Springs.—Some of the English Railway engineers and managers are just giving attention to the merits of India rubber springs for engines and carriages. In a paper read before an association of engineers in June last, Mr. William C. Craig, of Newport, Monmouthshire, called attention to the results he had derived from the use of India rubber in place of steel springs, upon a rough tram road, with engines of great weight and power. It was found that the engines and cars were subjected to much less concussion from the deflection of the rails, and that great saving of dead weight was made. The form of spring used was identical with most of those in use in America, being a cylinder of prepared rubber confined with bands and caps on the outside, and having a spiral spring or washers in the inside. Mr. Craig has applied, and recommends, a hollow cylinder of India rubber closed with iron ends and containing water or other fluid, which he calls a "hydro pneumatic spring." The evaporation of water, its liability to freeze in winter, and the possible effects of long contact of rubber with any fluid, when made under a considerable pressure, might operate against a spring of this description. The only object proposed by the improvement is the saving of a portion of the rubber. The saving which attended the use of India rubber springs upon the Western Valley line of the Monmouthshire Railway and Canal Company was found by Mr. Craig to be at the rate of nearly £500, or $2400, per annum, for a stock of only fifteen engines! This sum was upon repairs of springs alone, including the necessary connections of the springs with the engine frames.

Clinton Line Railroad.

The Clinton Line and Clinton Line Extension Railroad Companies, whose advertisement invites the attention of Contractors in another column, are constructing a link in the great interior chain of roads across the country from East to West. The two united roads extend from the Ohio and Pennsylvania State Line in Trumbull county to the Mad River road, and are together 150.7 miles in length. Of this line 132.4 miles are straight. Of the curved line, the minimum radius of curvature is 1,910 feet for four tenths of a mile, which, however, may be improved; the next is 2,865 feet for 3.2 miles; the next 3,820 feet for 4.3; the balance of the curved line is 6.5 miles of 5,730 feet radius and 3.9 of 11,460 feet. The gradients nowhere exceed 40 feet going East; the line surveyed presents one grade of 45 feet for 4.7 miles going West, which may be reduced however to 40 feet by heavier work, if not avoided by an improved location. The connections of this line give it the most commanding character. Eastwardly, it connects with the New York and Erie by the Meadville Branch and also with the Catawissa and New Jersey Central by the Ridgway and Williamsport line. Both of these Pennsylvania connections are, it is understood, in a way to be completed at an early day. Fifty five miles from the Pennsylvania line, the Clinton line at Hudson, its western terminus, receives the Cleveland, Zanesville and Cincinnati railroad opening a line now nearly completed to Cincinnati and, also, intersects the Cleveland and Pittsburg road favorably for commanding the Cleveland business to New York and Philadelphia. About 30 miles from Hudson it meets the projected short line from Cincinnati and 54 miles from Hudson it intersects the Cleveland, Columbus and Cincinnati road. At its proposed terminus on the Mad River road it receives a road in progress west to Fort Wayne, where the continued line receives and, also, meets a line to Chicago and another to Springfield and St. Louis both in progress, another in project to the mouth of the Platte River. The surveys show that the line from a point about 30 miles west of Hudson to the Mississippi river is almost exactly straight. The whole when completed, it is thought, will present one of the most remarkable lines of railroad in the country, whether length, working character or command of business be regarded. It is said that the various parts are all so far provided for as to warrant the expectation that the entire chain to the Mississippi river will be completed in three years at farthest, while the portions through Ohio and Pennsylvania will have connections with the great centers of trade in the West at a still earlier date.

English Railway Traffic.

We give in this number of the Journal, a very interesting statement of the receipts of the English roads, for the weeks ending June 19th, 1852 and June 18th, 1853, and reduced into American currency.

It has been prepared by a gentleman of this city, who has spent considerable time in England, and who has given much attention to the operations of their roads.

Weekly Returns of Railway Traffic. June 18th, 1853.

	Miles opened. 1852.	Miles opened. 1853.	Receipts. 1852.	Receipts. 1853.
Aberdeen	72½	72½	$7,342	$7,876
Befast & Ballymena	37¾	37¾	3,071	3,427
Birkenhead, Lancashire & Cheshire junction	32	32	7,156	8,782
Blackburn	—	—	—	—
Bristol & Exeter	84½	84½	22,293	22,800
Caledonian	189¼	189¼	38,720	45,000
Chester & Holyhead (including Mold).	94¼	94¼	14,324	19,378
Cork & Brandon	10	20	773	800
Cork, Blackroch & Passage	—	—	947	769
Dundalk & Enniskillen	20	20	782	844
Dundee & Arbroath	—	—	2,316	2,524
Dublin & Drogheda	53	53	4,609	5,756
Dublin & Kingstown	7¾	7¾	3,671	5,120
Dundee, Perth & Aberdeen	31	31	3,004	3,702
Dutch Rhenish	57¼	57¼	5,671	5,026
East Anglian	67½	67½	3,013	3,427
Eastern Counties (including Norfolk)	322	328	67,542	74,116
East Lancashire	79	81½	17,858	20,218
Eastern Union	94½	94½	9,889	11,129
Edinburgh & Glasgow	89¼	89¼	17,178	19,471
Edinburgh, Perth & Dundee	70	78	9,876	11,320
Glasgow & South Western	174¾	174¾	18,493	21,387
Great Northern	223¼	283	50,973	69,449
Great Southern and Western (Ireland)	188	188	22,191	25,124
Great Western	275½	283	50,973	69,449
Kendal & Windermere	10¼	10¼	942	1,018
Lancaster & Carlisle	90	90	21,671	23,253
Lancashire and Yorkshire	260	260	78,836	83,556
Liverpool, Crosby & Southport	16½	16½	2,938	2,702
London & North Western	540½	553½	203,351	223,640
London & Blackwall	5¾	5¾	5,102	6,751
London, Brighton & South Coast	173¼	173¼	41,036	52,604
Amount bro't up	3,369¼	3,510	$775,472	$899,618
London & South Western	244½	251	53,013	66,911
Londonderry & Enniskillen	24½	34½	1,218	1,787
Manchester, Buxton & Matlock junct.	—	—	—	—
Manchester, Sheffield & Lincolnshire	167¾	167¾	29,449	35,102
Manchester South junction	"	"	"	2,911
Ottrinchan	—	—	2,822	"
Maryport & Carlisle	—	—	3,178	2,924
Midland	498¾	498¾	100,467	105,618
Midland Great Western (Ireland)	126½	126½	10,695	11,453
North British (including Dalkieth Branches)	149	149	14,929	16,542
North Staffordshire	—	—	—	—
North Western	46½	46½	3,658	4,486
Oxford, Worcester & Wolverhampton	—	45½	—	7,622
Paris & Orleans	493	577	—	—
Paris & Rouen	82	82	33,222	37,373
Paris & Strasburg	—	392	—	—
Rouen & Havre	59	59	12,871	15,524
Scottish Central	50	50	8,902	9,334
Scottish Midland junction	32½	32½	2,747	3,191
Shrewsbury & Birmingham	29½	29½	—	—
Shrewsbury & Chester	48	48	3,276	8,076
Shropshire Union	30	30	2,924	2,969
South Devon	57¾	57¾	9,587	10,147
South Eastern	249	289	57,178	72,236
South Wales	100½	131	7,049	15,017
South Yorkshire	77	77	4,907	8,769
Toncaster & Goole, Stockton & Hartlepool	—	—	12,450	13,111
Taff Vale	38	38	3,747	5,053
Ulster	36	36	2,133	2,387
Waterford & Limerick	50	68	1,573	2,756
West Cornwall	16¼	25	10,178	9,173
Whitehaven junction,	12	12	1,044	1,044
York & North Midland, York, Newcastle & Berwick, Leeds Northern	621	652	97,116	113,782
	6,708	7,515½	$1,265,871	1,485,004

Amount per year	1852	RECEIPTS.	1853.
	$66,825,292 00		$77,220,208 00

Amount per week	1852	RECEIPTS.	1853.
	$1,265,871 00		$1,485,004 00

The English and French Railway System.

From Herapath's Journal of Oct. 1st.

Generally speaking, the English and the French systems adopted in the construction of railways are widely different. The English has failed of success; the French has succeeded. Yet there is more traffic in England than in France, and there is no reason for greater outlay.

In speaking of the *success* of railways, we mean their success as regards the shareholders' property invested in them, The public interest, however, is not neglected in France; on the contrary, it is served quite as well there as here—perhaps better; since the accidents on French roads are fewer, the regularity of the trains is greater, the fares are lower and the speed is not much less. On this point opinions differ. Some think greater speed alone shows greater advantage to the public; others think security, regularity, and lower fares advantages which more than counterbalance the single advantage of dashing along at a frightful pace. We confess we are fond of speed. It is pleasingly heroic to do 60 miles an hour, and there is a business advantage in it. But our feelings are, nevertheless, in favor of preserving our lives, and saving our pockets, when these are sacrificed to attain high velocities. If the choice were offered us of travelling from A to B at 60 miles an hour, endangering our lives and drawing heavily on our pockets, or to perform the same journey at the rate of 40 miles an hour with no risk of accident and at a smaller cost, we should choose the latter. We prefer safety and regularity to speed; low fares to high fares—when the companies derive the same profit from them.

The English railway system, in point of the method adopted in constructing the lines, differs from the French mainly in this respect—the French railway companies have only *leases* of their lines, while the English have theirs granted to them *in perpetuity*. The difference is very similar to a man renting the house he inhabits, and living in his own house, the former representing the French system, the latter the English. Which of the two is better? As regards house property it is proverbial, which is better. The tenant spends his money carefully; if he has to do repairs he is very careful to do no more than is necessary. On principle he will not be extravagant. If he indulges in luxurious mendings and fanciful makings—"improvements"—the landlord or next tenant, not he, presently comes in to enjoy them, should they be capable of affording any enjoyment, and not be—as however they usually are—ridiculous attempts at taste and improvement. On the other hand, the man who occupies his own house generally wastes money in continually making improvements. He will build up, and he will pull down; he will alter and amend; he will have this and that—all because it is his own house, and what money he spends, he spends as it were on himself. You frequently hear a man give as a reason for going to some heavy expense on his house, that the house is his own freehold property—his in perpetuity—and that what money he spends on it he can always enjoy, forgetting that though the common law vests property in men for ever, there is a divine law which gives only a *lease of life*, and sometimes a very short one, frequently the lot of the best of us. The law of society might secure a man in the right to property in perpetuity, but undoubtedly, at the end of a few years, more or less numerous, the Almighty will deprive him of the enjoyment of it. However long the period of legal right to possession, life is short.

We believe the owners of railway property are actuated by the same motives as the owners of houses. When the railway is their own in perpetuity, they spend in improvements with a lavish hand. They regard what they call the *permanent* condition of their property, and commit the most absurd mistakes. Looking to catch the two birds in the bush, they let the one in hand fly. It is a fact, forcibly illustrative of our position, that one of the great English railway companies spent an enormous amount of additional capital on their line, with the view of obtaining perpetual security against competition, vainly imagining that extravagance would add to the security of a railway property. *Security* is a sad stumbling-block to the success of English railway companies. The French, on the contrary, enjoying only *leases* of their railways, with provision for redeeming their capital at the end of the leases, turn their whole attention to serving the public fairly, and getting immediately as much profit as possible from the lines. Necessarily they will not spend more capital than is requisite, nor will they lose time and incur heavy expenses in fighting other companies. They are only tenants for a time. If they lose time they lose money by not making the gains they could. If they spend more capital than is necessary, the ultimate owner of the railway—the government—will reap the benefit, if any benefit arise from lavish capital expenditure.

The French plan of leases induces Directors, 1st. To get all the profit for the time being they can; and 2d. To save capital expenditure, since they themselves have to replace the capital spent by means of a sinking fund provided out of the revenue earnings.

The English plan of granting perpetual possession to railway companies seems to have an opposite effect. Directors sacrifice present gains with a view of acquiring perfect security for the property, and the usual means adopted to gain this very doubtful end are to enter upon long and expensive parliamentary contests, to sink enormous sums of

capital in the formation of their lines, and to amalgamate with other companies; all dividend destroying circumstances, and yet we doubt whether the object in view, namely, *securily*, is not rather impaired than furthered, for when a line has become exceedingly expensive, and its company involved in embarrassing engagements, will not new companies spring up to do the work for the public cheaper, and secure for themselves higher dividends?

Exhibit of the Condition and Prospects of the Cleveland and Mahoning Railroad Company.

CHARTER.

The Cleveland and Mahoning Railroad Company was chartered by the Legislature of the State of Ohio, March 21, 1851, by the passage of an act reviving a previous law, and was duly organized September 20th of the same year. The franchises, powers, privileges, and obligations of the Company, are defined in the general Railroad Law of Ohio, of Feb. 11, 1848, and its amendments, being the law under which nearly all the railroads of Ohio, constructed since its passage, have been built.

The Company are thereby invested with all the necessary and ordinary powers and franchises of Railroad Companies. The amount of capital stock authorized is $1,500,000, with a power of increase vested in the stockholders; and the Company is authorized to borrow money on the Credit of the Corporation, to any amount not exceeding its authorized capital stock; to issue bonds therefor at a rate of interest not exceeding seven per cent. per annum, and for securing payment thereof, to pledge the property and income of the Company—to sell such bonds, either within or without the State, at such prices as in the opinion of the directors of the Company will best advance its interests; and making such sale or sales (if at a discount) as binding for the respective amounts thereof as if said bonds were sold at their par value. The Charter of the Company in Ohio was re-enacted in Pennsylvania, with some additions, by law dated February 11, 1853, and the powers and franchises of the Company in both States are substantially the same.

THE LINE OF ROAD.

The road which the Company are constructing, as authorized by the above-mentioned Charters, extends from Cleveland in the State of Ohio, through the Mahoning Valley to a point near the junction of the Mahoning and Shenango rivers, in the vicinity of New Castle, Lawrence county, Pennsylvania, a distance of 85 miles in the most direct practicable route from Cleveland to Philadelphia, Pittsburg, and Baltimore. It is a very direct road, stretching across the table-lands lying between the Harbor of Cleveland and the head-waters of the Mahoning, in nearly a straight line, and then descending the river valley upon an almost entirely level route, with long tangents and curves of large radii. The maximum grades upon the line going West, are 21 feet to the mile, and going East are 16 feet to the mile, except seven miles on leaving the Lake at Cleveland, where grades of 60 feet per mile occur: but being in the immediate vicinity of the principal station, and in favor of the heavy coal and iron trade from the interior to the Lake, will not be any serious difficulty in operating the road. The road will be constructed in the most substantial manner. The masonry is all being built for a double track—while oak ties 7 by 9 inches, of which a large quantity are now delivered on the line, and a rail of 60 lbs. per yard will be used in the superstructure. With the exception of about fifteen miles towards the Western extremity, gravel or ballasting will be abundant. Sixty-seven miles of the road is under contract, and progressing with a good degree of rapidity, and the whole is to be prepared for the iron in May next.

CONNECTIONS AND THROUGH TRADE.

Eastwardly. At its terminus near New Castle, the Cleveland and Mahoning Railroad will connect with a branch of the Ohio and Pennsylvania Railroad, which, it is understood, is about to be constructed from the New Brighton station, on that road, up the valley of the Beaver, or Lower Mahoning, to New Castle, in default of which the Mahoning road will be extended to the same point, thus forming a railroad line from Cleveland to Pittsburg, upon the shortest and best possible route, 131 miles from city to city, with great advantages as against any other route in grades and curvatures. At the same point, near New Castle, it will connect with the North Western (Pennsylvania) railroad, from New Castle to Blairsville on the Pennsylvania railroad—a road of which the surveys are just approaching completion, and which, there is no reason to doubt, will be constructed by the Company organized for that purpose, with the assistance of the Pennsylvania railroad and the City of Philadelphia. The Cleveland and Mahoning railroad, in connection with the North Western and the Pennsylvania railroads, will form a line from Cleveland to Philadelphia, 472 miles long, being 22 miles shorter than the line through Pittsburg, and having the advantage of an unbroken gauge, and no trans-shipment the whole distance. The same route, in connection with the Baltimore and Susquehanna railroad, furnishes a line from Cleveland to Baltimore, 66 miles shorter than the line, via Wheeling and the Baltimore and Ohio railroad, and 48 miles shorter to Washington City than the same route.

Westwardly. At Cleveland, the Cleveland and Mahoning railroad will connect with the great system of railroads terminating at that point—the Cleveland and Columbus line to Cincinnati—its Bellefontaine branch to Indianapolis and St. Louis, and the Toledo and Norwalk. It will terminate on the same ground with the Junction railroad, now part of the Cleveland and Toledo railroad, of the same gauge, via Swanton and the Northern Indiana railroad to Chicago, thus forming a continuous line of an unbroken gauge, and shorter than any other route, either constructed or projected, from either Philadelphia, Baltimore, or Washington, to Chicago, and all the emporiums of lake commerce east of it. The line, taken together, is also far superior in character to any other route that can compete with it for any portion of the same trade, and is the longest and most magnificent unbroken line of railway communication in the United States. With these advantages, it must always be the great commercial avenue between all the Atlantic cities south of New York, and the basin of the Lakes. For the passenger trade of New York, the Mahoning road will ultimately open a new channel, which will form an alternate line to the great Lake Shore route, which now controls the traffic almost exclusively. A route is undertaken from Dauphin Bridge, or a point in that vicinity, on the Pennsylvania railroad, via Allentown to Easton, and thence by the New Jersey Central, to New York; thirty-two miles only are required to finish this line from New York to Dauphin—a good Company in New York City have it in hand, and it will be completed at an early day. Two routes are also being surveyed from Warren, Ohio, on the line of the Mahoning road, one via Franklin, Penn., to Williamsport, and thence, via the Catawissa and New Jersey Central road, to New York; the other via Meadville and Little Valley, and thence via the New York and Erie road to New York. On these two last routes, large local interests are concerned, both in Pennsylvania and Ohio, and they are so demanded for local accommodation, as well as with a view to the through traffic of the country, that no doubt is entertained that one, if not both of them, will be built. The route, by the Pennsylvania railroad and Easton, and still more, the route via Williamsport and Easton, (if built) will shorten the distance between Cleveland and New York about 100 miles, as compared with the lake shore route, and although less favorable in point of grades and curvature, than the New York Central Line, is more favorable in both those respects, than the New York and Erie. Whether the great saving in distance will fully counterbalance the difference in character as compared with the New York Central, may be left to the future to determine. One thing may be taken for certain, that the Mahoning road will furnish, by these connections, the great alternate line from Cleveland to New York, in distance about 100 miles shorter, unembarrassed by transhipment or changes of gauge and superior in grades and curvature to the New York and Erie road. Any east and west road, which might be projected, running south of Cleveland, is immediately driven into rough and difficult country, and must make a detour to return to the more Western Lake cities. It is also certain that no road can ever leave Cleveland between the Lake Shore road on the North, and the Mahoning road on the South. The stone quarry ridge, the deep valley of the Chagrin, and the precipitous hills by which it is bordered, all of which must be crossed at right angles, render the whole intermediate country, for 30 miles east of Cleveland, entirely impracticable for such a road. In other words, the position of the Mahoning road, as the only alternate line with the Lake Shore, from Cleveland and the Lakes west of Cleveland to New York, is assured by the natural features of the country. It is the only line that can divide with its great rival the harvest, which is fast swelling beyond the capacity of a single road. A road, called the Clinton Line, is also projected, and a portion of it under contract, crossing the Mahoning road about 26 miles from Cleveland, and running towards the south line of Ashtabula Co., which will bring the business of that region upon the Mahoning road, and be a valuable feeder to its trade.

But the most important connection for business with the Mahoning road, is the sail and steam marine of the Lakes themselves. Leaving the Harbor of Cleveland, at right angles to the Lake Coast, and on the most direct and easy route to all the Atlantic cities south of New York, if not ultimately to New York itself, it is destined to become the most important channel of trade between those cities and the whole Lake Basin. The Company have secured about 20 acres of very valuable lands, directly at the piers, having in all a river front of about 1500 feet, and a lake front of nearly half a mile, thus enabling themselves to provide accommodations for the most extensive trade between the cars and vessels in the harbor. The amount and value of that trade is best ascertained by the official returns to the Government of the United States. In a communication from the Secretary of the Treasury, of date, August 25, 1852, occur the following statements respecting the Lake trade:—

"During the year, 1851, the commerce, foreign and coastwise, was estimated at $326,593,335, transacted by means of an enrolled tonnage of 77,061 tons of steam, and 138,914 tons of sail, or an aggregate licensed tonnage of 215,975 tons. In the prosecution of this commerce, it would appear, as nearly as can be ascertained, that there was entered an aggregate at all the lake ports together of 9,469,506 tons during the season, and cleared at the same ports, 9,456,346 tons.

"The amount of grain alone which was transported during the season of 1851 (which was a year of short crops), amounted to 1,962,729 barrels of flour, and 8,119,169 bushels of wheat, (amounting to what equals an aggregate of 17,932,807 bushels of wheat;) 7,498,264 bushels of corn; 1,591,758 bushels of oats; and 360,172 bushels barley: in all 27,382,801 bushels of cereal produce."

Comparisons are, however, sometime more satisfactory than figures. We therefore extract from the same report, that the yearly average of the whole foreign commerce of the United States, including exports and imports, from 1848 to 1852, exclusive of specie, was $332,007,232, being only two per cent. greater than the trade of the lakes in 1851. The lake commerce is also compared in the same report with the whole river commerce of the country, for the year 1851:

	TONS.	VALUE.
Lake commerce, exclusive of $12,119,877 Canadian and Foreign.....	3,971,126	$314,473,458
River commerce.....	4,066,800	389,502,744

Being about equal to all the commercial exchanges taking place upon the almost unbounded river navigation of the whole interior of the United States. All the seaboard cities of the United States, south of New-York, especially Philadelphia and Baltimore, must have their cheapest and most direct avenue to this immense trade over the line of the Mahoning road to the harbor of Cleveland. That city is situated at the most southerly bend of lake Erie, and the trade of the whole lake basin (lakes Ontario and Champlain excepted), in its transit Eastward, enters her harbor or passes directly in front of her piers. From that point the coast of Lake Erie runs nearly parallel to the coast of the Atlantic, not towards it, and of course scarcely diminishes its distance from the Atlantic cities. At Erie, for instance, at a distance of 95 miles from Cleveland, you have approached Philadelphia only 26 miles, and have not diminished your distance from Baltimore—as you go further East the odds increase. In other words, the great thoroughfare from the lakes, with their commerce already equal to the whole foreign commerce of the country, to Philadelphia and Baltimore, must leave their shores at the city of Cleveland, and by the line of the Mahoning road. Its grounds for hereafter dividing the New-York with the Lake Shore line, having been already stated, and it may be left to the future to determine how sufficient they may prove.

Local Traffic.

Although the preceding exhibit of the probable through-business of the Mahoning railroad is sufficiently gratifying, still it is with especial satisfaction and confidence that we refer to its prospects of local trade—the most certain and unfailing support of every road. The region lying between the Lake Shore road, on the northeast, and the Ohio and Pennsylvania, and Cleveland and Wellsville roads on the southwest, is nearly an equilateral triangle with the apex at Cleveland and the base about 80 miles broad upon the East line of the State. Through the heart of this region runs the Mahoning river, and in its valley have grown up all the important centres of the local trade. It so happens therefore, that the Mahoning railroad following the river runs through, or in sight of, every town in this whole area—(more than half as large as the State of Connecticut), containing 500 inhabitants, excepting Chagrin Falls and Newton Falls, and within 4 miles of each of these, commanding a larger town and village population than any railroad terminating at Cleveland. The population of the whole State of Ohio, *cities included*, is less than 50 per square mile by the census of 1850. The population of the township through which the Mahoning road will run, is 64 per square mile—Cleveland, which is the only city, *excluded*. No portion of the State of Ohio is more crowded with towns, manufacturing establishments, and cultivated farms, and none richer in the sources of a heavy local freight and passenger trade.

Passenger Traffic.

The data for a particular estimate may perhaps be found in the followiug manner. Eight regular stages, with occasional extras, are now running daily each way from towns on the line of the Mahoning railroad to Cleveland, and to stations on the Cleveland and Wellsville, and Ohio and Pennsylvania railroads, to accommodate simply the local passenger travel of these towns to Cleveland and Pittsburg. At least an equal amount takes private conveyance.

We estimate eight stages daily, at seven passengers each way per day	112
Travel by private conveyance same	112
Equal to 112 through passengers	224

If we estimate that this amount will be doubled by the superior facilities afforded by the railroad, making an amount of local travel equivalent to two hundred and twenty-four through passengers per day, we are undoubtedly entirely within the mark which the experience of other roads would justify.

Coal Trade.

The most important single item in the freight business of our road upon its first opening, will probably be coal. The line of the road will pass through the whole coal field of the Mahoning, in the most favorable position to receive the product of all the beds now worked, or which shall be hereafter opened in that valley. The amount of that trade is now large, and is rapidly increasing. In 1849 the amount cleared upon the canal at Youngstown and Warren was 751,837 bushels; in 1850, 1,389,901 bushels; in 1851, 1,946,225 bushels; and in 1852, 2,306,182 bushels. For 1853, the returns of course are not received, but it is known that a large increase (not less than 20 per cent.) is taking place upon last year. This coal is all destined for the Cleveland market, and amounts to more than one half of the whole quantity delivered at that point.

It is now transported one hundred miles by canal, and pays twenty cents toll per ton. The Ohio canal coal, which is as yet its only competitor in the Cleveland market, is transported a distance of about seventy miles, and pays from ten to twelve cents toll per ton.

The difference in the cost of delivery by the present modes of conveyance is thus made about 50 cents per ton against the Mahoning coal. Its selling price in market is regularly about 50 cents per ton greater, and yet in the face of such odds in cost and price, it has regularly furnished the Cleveland market with more than one-half the whole supply, thus practically demonstrating the fact which is well understood in Ohio, that the Mahoning or Brier Hill coal is of the best quality yet discovered in the State.

The Mahoning railroad will enter this coal region in a distance of 58 miles from Cleveland, and will pass through it about 16 miles, in the immediate vicinity of all the beds yet worked, just below the level at which the coal is found, and in the most favorable position possible to receive it upon the line. It will pass thence to Cleveland, over grades not exceeding at any point twenty-one feet to the mile, and be delivered on the Cuyahoga river, with abundance of room on the river for the handling and shipping of the coal.

The road will have the advantage in distance as compared with the canal, of about 35 miles. The canal is a very imperfect one: the road will be a first class railroad, with grades and alignment of the most favorable character, and with the most abundant facilities for handling the article at its termination.

Under these conditions there can be no doubt that the road will control the coal trade to as great an extent as the demands of other business upon its capacity will permit.

The lowest cost at which the coal is ever delivered on the dock at Cleveland, exclusive of tolls and inclusive of the cost of unloading the boats, is $1 15. The present cost is $1 80.

If, therefore, the tolls could be entirely remitted on the canal (which, of course, is impossible,) the cost of delivery would still amount to a rate of two cents per ton per mile by railroad, a higher rate than any coal bearing road in the United States now charges. There can be certainly no doubt of the result.

If it be admitted that the road can control the transportation of the coal, this article of trade will alone, in a short time, tax a single track to its utmost capacity.

With the same rate of increase which has governed the production in the Mahoning Valley for the last four years (and with the additional facilities offered by the road, it cannot be doubted that the ratio of increase will continue), it will amount in the year 1856 to 250,000 tons, or 800 tons per day during the whole year, and would alone justify the construction of the road from Cleveland to the coal region.

It is proper to add, that the North Western railroad from New Castle to Blairsville, will run for a great portion of the distance through coal fields of the finest description of the character known in the western markets as Pittsburg coal. They have been as yet but partially developed for want of means of transportation, but the furnaces in that region, and the trade for domestic purposes, has caused the beds to be examined sufficiently to demonstrate their extent and quality. They will undoubtedly furnish as soon as the North western road is completed, a very large business to the Mahoning road in that particular, and very valuable variety of western coals.

Iron Trade.

The Mahoning Valley has, within a few years become the centre of a large iron trade, which is rapidly increasing. The present production is as follows: one furnace at Niles, four at Youngstown, one at Lowell, and eight near New Castle, are delivering their pig iron at that point. These furnaces, with few exceptions, are stone coal furnaces, and now making about 8 tons each per day, or more than 100 tons per day in all. This is an increase of 100 per cent. since last season, and other furnaces are going up which will largely increase it next year. A new furnace, for instance, will be completed within ninety days at New Castle, which is expected to turn out fifteen tons of metal per day. There are four rolling mills in the valley, two of them very large establishments. At one of them are now being made the rails for the second track of the Cleveland and Columbus railroad. These furnaces and mills are most of them in the immediate vicinity of the road, and will contribute their whole product to swell its business over nearly its entire length, as the great market for the iron is upon the lakes, through Cleveland.

If the expectations now entertained of lake Superior iron ore are realized, a large business must also be done in that article, which may be looked upon as likely to furnish back-loading to coal cars, to be worked with Mahoning coal. This article, however, cannot be commanded till the Saut Ste. Marie canal is completed. Meantime a trade is growing in Lake Champlain ore, an ore of the same general quality of the Lake Superior. Last year, about 3000 tons were carried from Cleveland to the Mahoning Valley and Pittsburg. This year, the quantity will probably exceed 8000 tons, and for the coming year, contracts are already made for a much larger quantity. The Lake Superior ore, when accessable, will be delivered at Cleveland for much less money, and the trade is, beyond any question, destined to an immense increase.

Agricultural Produce.

In the ordinary articles of agricultural produce, which form almost exclusively the export trade of other Ohio railroads, our road may anticipate a business of the most gratifying character. It runs through the most densly settled and richest portion of northern Ohio, and a region at least equal to any other in the amount and value of its agricultural exports.

The amount of cheese alone, received and shipped at the single port of Warren, has sometimes run up to more than four thousand tons in one season. The amount received at Aurora and Garratsville is also very heavy, and will be greatly increased upon the construction of the railroad.

The amount of flour manufactured for *export* by the mills immediately upon the line at Warren, Girard, Youngstown, Poland, Lowell, New Castle, and Mahoningtown, amounts, during the season of navigation, to 350 barrels a day.

In the great variety of other articles of agricultural produce, too miscellaneous to be enumerated, and in the return trade of merchandise necessary for the convenience of a manufacturing and agricultural population, we can safely say that the line of road will have, immediately upon construction, a trade equal to that enjoyed in the same description of traffic by any road of equal length in northern Ohio.

With these explanations, we submit an estimate of the business of the road, *based upon its local trade alone—the data for which are within our immediate observation—without assuming any thing whatever from through business.*

SUMMARY AND ESTIMATE.

Local passenger travel equal to (say) 200 through passengers (100 each way) daily, at 8 cts. per mile.....	$159,630 00
150,000 tons of coal, ore, plaster, &c., at $1 20 cts. per ton for 65 miles, including rent of coal-yards and docks, furnished by the company..	180,000 00
30,000 tons of iron at $2 per ton.....	60,000 00
15,000 tons of local miscellaneous freight, agricultural produce, merchandise, lumber, &c., &c., at ($2 50) per ton.....	37,500 00
	$437,130 00
Deduct 40 per cent. for expenses....	174,852 00
	262,278 00

Equal to 13 per cent. *from local traffic alone*, on a cost of $2,000,000.

COST OF THE ROAD.

The cost of the road completed in running order, ballasted and stocked with cars and machinery, and provided with depots, calculating iron at $70 per ton, is estimated by EDWARD WARNER, Esq., principal Engineer at $1,746,966, as follows, viz:

Graduation, masonry, and bridging 85 miles.....	$597,966
Iron.....	765,000
Right of way.....	85,000
Depot grounds and buildings, and water stations.....	125,000
Engineering and superintendence.....	24,000
Equipment of cars and locomotives for the first year, exclusive of coal cars and engines.....	150,000
	$1,746,966

The Tunnel through the Alps.

The June number of the London Builder contains the following description of *the Chevalier M. Maus'* plan for forming a tunnel through the Alps, and of his tunnelling machine.

The line of communication selected by M. Maus skirts the southern side of the Mount Cenis, following the valley of the Dora, and passes by the towns of Susa, Oulx, Bardoneche, &c., thence by means of a tunnel under the ridge of the Alps, it proceeds to Modana, a town situated in Savoy, on the west of that extensive chain of mountains, by a route only 30 miles in length; while the existing public thoroughfare over the Mont Cenis pass is nearly 40 miles, so that a saving of about 10 miles would be at once effected between Susa and Modana; and the time required to travel between these two places would, in the event of this project being put into execution, be reduced from eight hours (the time which the mail takes to go by the present road) to one hour and a half, a very moderate calculation for the railway—being only at the rate of twenty miles per hour.

Thus the portion of the great Savoy trunk line of railway, projected by M. Maus, would commence, on the Italian side, at the town of Susa, near the confluence of the Dora with the Cenisis, a rapid stream that takes its rise in the Mont Cenis, and would form a continuation of the Turin and Susa railway, now in course of construction; the line would then pass to the right of the village of Gioglione and over the high grounds of Chaumont (where the mountainous character of the country involves the necessity of two tunnels, which are, however, of minor importance, the one being about 3040 yards in length, and the other only 330. A short tunnel will likewise be necessary at the Fort of Exilles, in order to avoid some of the outworks, and farther on another tunnel, which, however, will be only 2230 yards long.) We thus arrive at Salbertrand, situated ten miles from Susa and nearly 1670 feet above its level, which gives for this portion of the line an average ascending gradient of 1 in 31. Beyond this, passing Oulx, Savoulx, Beaulard, and even for some way farther on than Bardoneche, the surface of the country is remarkably uniform, and will not present any difficulty: the length of this section is about eleven miles, and its average rate of inclination 1 in 57. The remaining nine miles is a descending gradient of nearly 1 in 57, likewise. And here the line obtains a passage beneath the Alpine ridge by a tunnel of about eight miles in length, at a depth of 5248 feet, or as nearly as possible a mile below the surface of the pass.

The three principal gradients above mentioned being divided into others, to suit the nature of the ground, the rates of inclination on some portions of the line will be steeper in certain cases than those named, but in no instance will they exceed 1 in 28. Throughout the whole length of the principal tunnel the gradient will be 1 in 53.

M. Maus estimates the cost of the work as follows:—

For forming a heading with a machine invented by him for the purpose....	£180,000
For increasing the size of the heading, so as to form a tunnel in the usual manner through a lias rock, containing scales of mica and grains of quartz, of so compact a nature as not, apparently, to require any facing in masonry.....	370,880
	£550,880
For the remaining portions of the line forming approaches north and south of the proposed tunnel, viz:	
Cost of land.....	26,019
Earthwork.....	181,366
Bridges, culverts, &c., including the several shorter tunnels above alluded to.....	468,448
Rails, chain, sleepers, &c.....	171,969
Total.....	£1,398,682

Say £1,400,000 altogether in round numbers.

As the projector considered that the great difficulty in the way of carrying out this bold conception would be the amount of time and labor which, according to our present system of conducting such operations, it would necessarily require, he has contrived an excavating machine, for facilitating the labor, and which, at the same time, is calculated to expedite in a very great degree the execution of this and similar works, and from the success which has attended the trials he has already made with it, he states that he has no hesitation in fixing five years as an amply sufficient period for the completion of the projected tunnels, working at both ends at the same time, although without shafts, which the height above renders impossible.

The excavating machine consists of a frame, in which are set a number of very broad chisels, having projections on their face, acting somewhat after the manner of the hammer used by masons to restore the rough surface to the granite pavement in London when worn smooth by the traffic.

The chisels are so arranged as to cut into the face of the rock, at the extremity of the heading, five horizontal grooves, and two vertical channels bounding the former, and at right angles thereto. These grooves or channels are run into the other, and serve to insulate four rectangular blocks of stone, which will then remain attached only by one of their planes to the solid mass of the mountain rock, from which they may readily be separated by wedges, driven with heavy hammers into the grooves.

These blocks will be about seven feet long, three feet wide, and eighteen inches in thickness.

The machine acts only upon half the width of the heading at a time, so that while it is at work cutting the grooves, which separate the blocks of stone at one side, the workmen are engaged in removing those already cut in the other half-width of the heading.

When the machine and the laborers have each completed their tasks, they mutually change places. The machine again sets to work to shape out new blocks of stone, and the workmen proceed to detach those which have just been cut, beginning by inserting the wedges at the top of the heading, and proceeding downwards; by thus prizing the stones, they are easily separated from the rock, after which they are placed on trucks, and conveyed to their destination, so that the space is again left clear for the machine to recommence its operations.

The excavating machine cuts the channels in the rock, by means of several series of chisels placed one beside the other, in straight lines; these lines of cutting tools are so arranged as to be capable of a slight lateral motion in the direction of the grooves after every stroke; the object of this is to bring the chisels to bear upon all the spaces lying between the several cutting tools situate in the same line, so as to produce not a succession of holes, but a continuous channel similar to a very wide saw cut.

The lateral shifting of the lines of chisels, which takes place alternately from right to left, and from left to right, is caused by a corresponding motion given to the frames in which they are fixed. Each chisel is driven against the rock by a spiral string coiled round it, and which produces an effect similar to that caused by the muscles of a man in the act of throwing a javelin. This spring, driving the chisel forcibly against the rock, obliges it to act efficaciously, notwithstanding the slight inequalities at the bottom of the channel, arising from a want of uniformity in the resistance of the stone.

When the machine is in operation, the several lines of chisel are all drawn back simultaneously, by means of a species of cam, or movable bar, which acts against projections formed on the cutting instruments. This, by forcing back the chisels, and thus compressing the above mentioned springs, leaves them in a position to exert a strong percussive force as soon as the pressure is removed. This is effected by suddenly raising the bars, by means of an inclined plane, situated at the proper place for the end of the stroke. As soon as the blow has been struck, the springs are again immediately compressed, as before, and the process is continued until grooves have been worked to the requisite depth into the solid substance of the rock.

Although all the chisels in each row are similarly acted upon by the movable bar, they are nevertheless, completely independent one of the other, so that they may each be removed at pleasure, without interfering with the motion of those adjacent, or even suspending the operations of the machine; and if it be observed that one or other does not act efficiently, such may be removed, and new chisels substituted in their stead, without causing any delay or cessation.

The back and forward motion of the bar, which performs the functions of a cam, by pushing against the projections with which the several chisels are furnished, is caused, through the intermediation of rods and cranks, by two rotary drums, which themselves are made to turn by an endless rope, communicating with a water wheel, or other suitable motive power, situated at the entrance to the heading. The apparatus is arranged so as to enable the chisels to strike 150 blows in a minute.

The machine, at the same time, sets in motion a pump, which forces a constant supply of water into a reservoir, the upper part of which is filled with compressed air. By this means, the water is driven out in jets, through small pipes placed between the chisels, and is thus made to play upon the grooves, where it performs the double office of preventing the cutting instruments from getting heated, and removing the dust and chips of broken stone, which would otherwise accumulate in the grooves, and thereby prevent the effective working of the excavator.

The manner in which the engineer proposes to provide for a proper supply of fresh air during the progress of the work is by means of a tubular ventilator, which he intends to lay along the bottom of the gallery. At given intervals throughout its entire length, according as they may be found

necessary, he would insert fans, which he suggests might be placed on the spindles or shafts of the rollers or sheaves over which the endless rope is made to pass, so that they could constantly be worked with very little additional expense. These fans would force the air from one chamber of the tube into that immediately succeeding it, and as the ventilator would be made air-tight throughout its whole length, and only open at its extreme ends, so that the air introduced through the tube may pass out through the heading, he considers that a constant current of pure air would thus be continually maintained in the tunnel, which, by its uninterrupted circulation, would cause incessant, successive displacements as to prevent any possible accumulation of noxious gases or unoxygenated atmosphere.

Amoskeag Locomotive Works.

The Boston *Journal* contains an account of the extent of these works, situated at Manchester N. H., from which we have the following:

60 locomotives are manufactured every year, averaging a price of $8500 each, or $480,000 in the gross. These locomotives weigh from 20 to 30 tons each, and are furnished for home use, but principally for Western railroads. Besides these, the company annually manufactures cotton machinery sufficient for a mlli of 20,000 spindles. Turbine wheels are also a principal feature of which they produce a large number and variety every year, ranging in power from that of 20 to that of 300 horses. Several other branches of manufacture are carried on, embracing some 48 details; but these are subsidiary to those already enumerated. The machine department comprises three shops, and one foundry, also a boiler and tank shops, and to these are attached such buildings as the several operations require for stock, storage, &c. There are 63 tenements belonging to the company, which are occupied as boarding-houses for the men in their employ. These latter number some 500, and include some of the smartest and most respectable of the citizens of Manchester.

There is consumed at the works, every year, 2000 tons of pig iron (one-half of which is Lowmoor manufacture), 800 tons of bar iron and steel, 100 tons of copper, 40 tons of brass castings, 250 tons of boiler iron, 600 tons of Lehigh coal, 600 tons of Cumberland (English) coal, 4000 bushels of charcoal, 4000 gallons of oil, and 700 cords of wood.

The average sum paid as wages, per month, is $12,000, which among the workmen, is distributed at the rates of from $40 to $75 per month. Some men average more than the latter sum.

The principal articles manufactured are locomotive and stationary steam engines, boilers, cotton and woollen carding, spinning and weaving machinery, heavy tools, turbine wheels and mill work generally; and heavy castings are furnished by the company to order. All these branches are under the direct inspection and management of O. W. Bayley, Esq.

Reading Railroad.

We learn from the Schuylkill Miner's Journal that this Company are relaying a portion of their track with new rails. Some four miles, between Reading and Birdsboro', have been laid with a newly invented English rail, which requires no wooden sills, but is placed upon a bed of broken stone, and secured by wrought iron ties extending across the track at the joints of the rails, say about eight feet apart. The rails are made with very broad flanges at the base, somewhat in this shape—, thus spreading upon the ground, and intended to support themselves without the aid of sills.—They have been laid as an experiment, and the heavy tonnage of the road will doubtless put them to a fair test. If found to answer, their adoption will save a large item of cost, in the matter of wooden sills.

As the Company proceed with relaying their road—which is done as fast as the old rails become worn to any extent—a larger space is left between the two tracks, so that, in time, wider passenger cars than those now in use may be placed upon the road. At present the cars are as wide as they can be made, to pass each other with safety upon those portions of the road which have not yet been renewed.

Pacific Railroad of Missouri.

From the *Western Journal* we learn the present subscriptions to the stock of the company building this road, are as follows:

Subscriptions at and between St. Louis and Jefferson city.

City of St. Louis, in bonds at par, twenty years to run	$500,000
County of St. Louis	200,000
Franklin County, (declined on account of its terms)	50,000
Osage County, on condition of taking Union Ridge line	8,000
Osage County, on condition of taking Southern line	5,000
Private subsriptions of Franklin Co.	40,000
Individual subscriptions in St. Louis.	605,000
Private subscriptions in Gasconade Co.	16,700
Private subscriptions in Cole Co	11,600
	$1,436,300

The subscriptions of stock west of Jefferson City are as follows:

Jackson County, on condition that road is to pass through County, money to be expended in County after road is completed to County line	$100,000
Johnson County, conditions as above, payable in bonds at par, 1/3 in 10, 1/3 in 15 and 1/3 in 20 years	100,000
Morgan County, road to run through Co. on Southern survey	25,000
Pettis County, in bonds at 20 years, provided road runs through County within 5 miles of Georgetown, and bonds not to be sold till road has reached County line on east or west side	100,000
Lafayette County, if road runs through County and city of Lexington	300,000
Cooper County, in bonds at 20 years road to run through Boonville and Lexington	250,000
City of Boonville, if the city charter be amended to give power to subscribe in 20 years bonds and road to run through Boonville	50,000
Moniteau County, road to run through town of California, payable in bonds and other conditions. Objectionable.	50,000
Pettis County, for inland route and provided the $400,000 are raised	150,000
Moniteau County, do. and in leau of previous subscription	75,000
Johnson County, inland route and provided the $400,000 are raised	50,000
Cole County, rejected, very objectionable	50,000
Cass County, do. do. do	75,000
Private subscriptions in Moniteau and Cooper Counties, provided road is located on inland or Georgetown route	8,600
Do. in Pettis and Cooper County, on like terms	8,100
Do. in Moniteau County, on like terms	1,400
Asa Finlay, Marshall, Saline County, if on Boonville and Lexington route	5,000
Private subscriptions in the township of Kansas, west of Big Blue, provided road runs through said township, and provided no payment is required till road is commenced in said township	31,800

The subscriptions west of Jefferson city, not rejected on account of the conditions upon which they are made, amount to $1,254,900, of which nearly $550,000 are conditioned upon taking the Southern, or Pettis and Johnson County route. The interior route, via. Johnson County is 153 miles from Jefferson city to the Kansas, and will cost $25,000 per mile. The Boonville and Lexington route is 166 miles in length and the cost per mile will be greater. Agents are appointed to obtain the right of way on both routes.

The population and revenue of the counties along the river route is as follows:

Counties.	Population.	Revenue. 1852
St. Louis	121,853	$88,754 79
Franklin	11,193	4,608 78
Gasconade	5,740	1,086 61
Osage	5,914	1,493 59
Cole	5,597	2,347 15
Moniteau	5,572	1,535 66
Cooper	12,742	6,154 72
Saline	9,096	4,249 88
Lafayette	14,511	10,165 66
Jackson	13,914	7,009 43
	206,132	$127,406 27

With reference to the subscriptions made it is believed that they will be largely increased. It is quite probable that St. Louis city and county, to whom this work must become of the greatest importance by reason of the trade it will develope and bring to them, will raise their corporate subscriptions to $1,500,000, or $850,000 more than the present amount. This, with the present private subscriptions, will amount to $2,105,000, which with the State credit of $3,000,000 will leave a balance of $3,128,000 to be supplied by the counties along the line; the entire cost of the road by the river (Boonville and Lexington) route being estimated at $8,233,000.

Of the routes west of Jefferson city the Johnson county route is that contemplated in the charter of the company, although they are not bound to it except in the event of receiving a definite amount of aid from the people on the line. The Boonville and Lexington route, although longer and more expensive, will receive the support of a larger population and capital. The Johnson county route was the one indicated in the charter, with the condition that the people and counties interested should raise their subscriptions $400,000 above the amount subscribed at the time of passage of the act, and that the terms of right of way shall be equally as favorable as on any other route. If these conditions are not fulfilled previous to Dec. 25th, 1853, the company are authorized to select any other route. The same act extends the credit of the State an additional million of dollars, making $4,000,000 as the total amount of State means granted in aid of the work.

Louisville and Memphis Railroad.

The Hopkinsville Convention met on the 3d inst. The reports of engineers were heard. They reported the distance to Hopkinsville from Louisville at 150 miles, and from Hopkinsville to the State line 19 miles—whole distance from Louisville to the Tennessee line 169 miles. Whole cost for 169 miles, $3,718,000. Cost per mile, built and equipped for use, $22,000. Grade of the road on two practical passings of Muldro's Hill, 40 feet and 95 feet to the mile—curves one mile—plenty of coal—bituminous char, and cannel coal, so fine it leaves no stain upon a white handkerchief, and will light and burn as does a star candle. Money to build it will be raised by the subscription of the counties, the city, and individuals along the line. Members from the coal fields are willing to put in mortgage all, and subscribe half their lands, if required, to make the road.

The Louisville Times says:

"Memphis will maintain her 5 feet gauge and join the straight road at the State line, a distance of 185 miles, making the whole distance from Louisville to Memphis 353 miles The straight road gains near 33 miles less than the Louisville and Nashville road, branched at Bowlinggreen to Hopkinsville, on which is not a bushel of coal or

poand of iron. From Hopkinsville the straight road has direct connection over the Henderson road to Nashville, which is all under contract and in progress. The contractors taking $1,000,000 pay in the stock of the company, which contract is thought to be attainable by the Louisville and Memphis road."

American Railroad Journal.

Saturday, October 29, 1853.

Share and Money Market.

The stock market exhibits more steadiness at this writing than at the date of our last issue. The fluctuation prevalent in the leading fancies at that date continued during the week, and on Saturday settled into an extreme depression. Pending this state of things, some large sales were effected at better rates than had been anticipated, principally for the account of some of the heaviest operators, and on Monday more confidence was apparent at the meeting of the Board, which has been maintained since with a decided improvement in prices. The transactions in some of the leading railway stocks during the week were at the following rates:

	Erie.	Hudson River.	N. Y. Cent.	Har.	Del. & H. Canal.
Thursday	70	62½	107	51½	100
Friday	69¼	61½	106¾	50	100½
Saturday	70½	63	107½	50½	102½
Monday	70¾	64½	107¾	50½	104
Tuesday	70½	65	108	51	104½
Wednesday	71½	66	109½	52	104½

The stocks of the favorite Western roads were pretty much kept out of market during the excitement and therefore have not participated in the fluctuations. In railway bonds nothing of interest has transpired.

The railway returns continue to show the most gratifying results. The advance in provisions and breadstuffs will tend to give them a heavy winter business and add to their earnings beyond all anticipation.

We annex the following, not heretofore given, for the month of September:

	1853.	1852.
Watertown and Rome	$41,919	....
Stonington	29,644	$22,144
Vermont Central	80,000	64,340
Wilmington	94,000	71,428
Androscoggin and Kennebec	15,497	72,765

The total receipts into the U. S. treasury, exclusive of treasury notes, funded and trust funds, for the fiscal quarter ending Sept. 30th, were $21,333,776, and the expenditures were $15,081,383.

There is a better feeling in the money market, and it is thought that the crisis is past for the present. The last week was the most severe one since the commencement of the panic; but the safety with which the danger has been passed, by the mercantile community argues a strength in that quarter which will do much to hasten a reaction in the market. It is to be hoped that the return to a more easy and favorable state will be as rapid as was the contraction. What the effect of the war news by the Niagara will be, no one can tell. That the demand for, and prices of breadstuffs and provisions will be enhancee, there is little doubt. There can be no good reasion why the amount of European capital, seeking safe investment in our internal improvements, should not also be increased by an Eastern war, which, while it may endanger the safety of European securities, cannot possibly affect those of our railways.

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares.
Atlantic and St. Lawrence	Maine.	150	1,538,100	2,973,700	5,150,278	254,743	113,520	none	82
Androscoggin and Kennebec	"	55	809,878	1,016,500	2,064,458	140,561	80,053	none	86
Kennebec and Portland	"	72	876,741	800,000	2,180,000	133,338	.....	none	45
Port., Saco and Portsmouth	"	51	1,355,500	123,884	1,459,384	208,669	.....	6	98½
York and Cumberland,	"	20	285,747	341,100	713.605	23,946	11,256	none	—
Boston, Concord and Montreal	N. H.	93	1,649,278	622,200	2,540,217	150,538	79,659	none	35
Concord	"	35	1,485,000	none.	1,485,000	305,805	141,836	8	107½
Cheshire	"	54	2,078,625	720,900	3,002,094	287,768	55,266	5	48
Northern	"	82	3,016,634	.....	.....	328,782	163,075	5	45½
Manchester and Lawrence	"	24	717,543	.....	.....	.....	.....	6½	90
Nashua and Lowell	"	15	600,000	none.	651,214	132,545	51,513	8	109
Portsmouth and Concord	"	47	.....	.....	1,400,000	.....	.....	none	....
Sullivan	"	26	.....	.....	673,500	.....	.....	none	21
Connecticut and Passumpsic	Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	37
Rutland	"	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	25
Vermont Central	"	117	8,500,000	3,500,000	12,000,000	.....	.....	....	13⅜
Vermont and Canada	"	47	1,500,000	.....	1,500,000	Leased to	the Vt. C	ent.	100
Western Vermont	"	51	392,000	700,000	.....	Recently	opened.	none	....
Vermont Valley	"	24	.....	.....	.....	.....	.....	none	....
Boston and Lowell	Mass.	28	1,830,000	.....	1,995,249	388,108	130,881	7½	94½
Boston and Maine	"	83	4,076,974	150,000	4,092,927	659,001	338,215	7	103½
Boston and Providence	"	53	3,160,390	390,000	3,546,214	469,656	227,434	6	86½
Boston and Worcester	"	69	4,500,000	425,000	4,845,967	758,819	331,296	7	100¾
Cape Cod branch	"	28	421,295	171,800	633,906	60,743	30,056	2½	45
Connecticut River	"	52	1,591,100	193,500	1,801,946	229,004	72,028	5	55
Eastern	"	75	2,850,000	500,000	3,120,391	488,793	241,017	7½	92
Fall River	"	42	1,050,000	none.	1,050,000	229,445	99,589	8	106½
Fitchburg	"	66	3,540,000	112,305	3,623,073	574,574	232,787	6	94½
New Bedford and Taunton	"	20	500,000	none.	520,475	164,230	43,950	7½	117
Norfolk County	"	26	547,015	819,743	1,245,927	67,251	23,415	none	60
Old Colony	"	45	1,964,070	282,300	2,293,534	322,213	101,510	none	90½
Taunton Branch	"	12	250,000	none.	307,136	137,406	24,399	8	....
Vermont and Massachusetts	"	77	2,140,536	1,001,500	3,203,333	218,679	18,648	none	17½
Worcester and Nashua	"	45	1,134,000	171,210	1,321,945	162,109	66,900	4½	59
Western	"	155	5,150,000	5,319,520	9,953,759	1,339,873	683,194	6½	99
Stonington	R. I.	50	.....	467,700	.....	240,572	110,892	....	63½
Providence and Worcester	"	40	1,457,500	300,000	1,731,498	253,690	139,514	6	....
Canal	Conn.	45	.....	.....	.....	.....	.....	none	....
Hartford and New Haven	"	72	2,350,000	800,000	3,150,000	639,529	294,269	10	122
Housatonic	"	110	.....	.....	2,500,000	329,041	168,902	none	....
Hartford, Prov. and Fishkill	"	50	.....	.....	In progres	69,629	.....	none	....
New London, Wil. and Palmer	"	66	558,861	800,000	1,511,111	114,410	.....	....	....
New York and New Haven	"	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	99½
Naugatuck	"	62	926,000	440,000	.....	.....	.....	....	....
New London and New Haven	"	55	750,500	650,000	1,380,610	Recently	opened.	none	45
Norwich and Worcester	"	54	2,121,110	701,600	2,596,488	267,561	116,965	4½	51½
Buffalo and New York City	N. Y.	91	900,000	1,550,000	2,550,500	Recently	opened.	none	85
Buffalo, Corning and N. York	"	132	.....	.....	In progres	.....	.....	none	65
Buffalo and State Line	"	69	879,636	872,000	1,921,270	Recently	opened.	....	130
Canandaigua and Niagara F	"	50	.....	.....	In progres	.....	.....	....	....
Canandaigua and Elmira	"	47	425,509	582,400	987,627	76,760	39,360	none	68
Cayuga and Susquehanna	"	35	687,000	400,000	1,070,786	74,241	23,496	none	....
Erie, (New York and Erie)	"	464	9,612,995	24,003,865	31,301,806	3,537,766	1,691,623	7	71½
Hudson River	"	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	66
Harlem	"	130	4,725,250	977,463	6,102,935	681,445	324,494	5	51½
Long Island	"	95	1,875,148	516,246	2,446,391	205,068	44,070	none	27½
New York Central	"	504	22,858,600	2,111,824	24,974,423	.....	.....	....	109½
Ogdensburgh (Northern)	"	118	1,579,969	2,969,760	5,133,834	480,137	195,847	none	28
Oswego and Syracuse	"	35	350,000	201,500	607,803	90,616	48,609	4	70
Plattsburg and Montreal	"	23	174,042	131,000	849,775	Recently	opened.	none	....
Rensselaer and Saratoga	"	25	610,000	25,000	774,495	213,078	96,737	....	....
Rutland and Washington	"	60	850,000	400,000	1,250,000	Recently	opened.	....	....
Saratoga and Washington	"	41	899,800	940,000	1,832,945	173,545	135,017	none	80
Troy and Rutland	"	32	237,690	100,000	329,577	Recently	opened.	....	83
Troy and Boston	"	39	430,936	700,000	1,043,357	Recently	opened.	none	....
Watertown and Rome	"	96	1,011,940	650,000	1,693,711	225,152	116,706	8	100
Camden and Amboy	N. J.	65	1,500,000	.....	4,327,400	1,988,385	478,413	10	145
Morris and Essex	"	45	1,022,420	128,000	1,220,325	149,941	79,252	4	....
New Jersey	"	31	2,197,840	476,000	3,245,720	603,942	316,259	10	148
New Jersey Central	"	63	986,106	1,500,000	2,379,880	260,899	124,740	3½	....
Cumberland Valley	Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	....
Erie and North East	"	20	600,000	.....	750,000	Recently	opened.	....	125
Harrisburgh and Lancaster	"	36	783,950	688,051	1,609,494	200,249	106,932	8	....
Philadelphia and Reading	"	95	6,656,382	10,427,800	17,141,987	2,480,626	1,251,987	7	72½
Philad., Wilmington and Balt.	"	98	3,350,000	2,408,276	6,818,838	887,795	883,501	5	78

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net earnings for last official year.	Dividend for do.	Price of shares.
Pennsylvania Central	Penn.	250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	92
Philadelphia and Trenton	"	30	....	....	....	....	....	....	....
Pennsylvania Coal Co	"	47	....	....	....	....	....	....	102¼
Baltimore and Ohio	Md.	381	9,188,300	9,827,123	19,542,307	1,325,563	615,384	7	44
Washington branch	"	38	1,650,000	....	1,650,000	348,622	216,237	8	....
Baltimore and Susquehanna	"	57	....	....	....	413,673	152,536	....	..
Alexandria and Orange	Va.	65	....	....	In prog.	....	....	....	....
Manassas Gap	"	27	....	....	In prog.	....	....	....	....
Petersburgh	"	64	769,000	173,867	1,163,928	227,593	72,870	7	77
Richmond and Danville	"	78	1,372,324	200,000	In prog.	....	....	....	....
Richmond and Petersburgh	"	22	685,000	....	1,100,000	122,861	74,113	none	....
Rich., Fred. and Potomac	"	76	1,000,000	503,006	1,531,238	254,376	113,256	7	105
South Side	"	62	1,328,722	800,000	In prog.	....	....	....	....
Virginia Central	"	107	1,400,100	446,036	In prog.	176,485	74,902	none	....
Virginia and Tennessee	"	60	3,000,000	1,500,000	In prog.	....	....	none	98
Winchester and Potomac	"	32	180,000	120,000	416,532	89,776	....	12	....
Wilmington and Raleigh	N .C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	....
Charlotte and South Carolina	S. C.	110	....	....	....	....	....	....	....
Greenville and Columbia	"	140	1,004,231	300,000	In prog.	....	....	....	....
South Carolina	"	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester	"	....	....	....	In prog.	....	....	....	....
Georgia Central	Ga.	191	3,100,000	306,187	3,378,132	945,508	508,625	8	115
Georgia	"	211	4,000,000	1,214	....	934,424	456,468	7½	....
Macon and Western	"	101	1,214,283	168,000	1,596,283	296,584	153,697	9	109
Muscogee	"	71	....	....	In prog.	....	....	....	....
South Western	"	50	586,887	150,000	743,525	129,395	71,535	8	....
Alabama and Tennessee River	Ala.	55	....	....	In prog.	....	....	....	....
Memphis and Charleston	"	93	776,259	400,000	In prog.	....	....	....	....
Mobile and Ohio	"	33	879,868	....	In prog.	....	....	....	....
Montgomery and West Point	"	88	688,611	....	1,330,960	173,542	76,079	8	....
Southern	Miss.	60	....	....	....	....	....	....	....
East Tennessee and Georgia	Tenn.	80	835,000	541,000	In prog.	....	....	....	....
Nashville and Chattanooga	"	125	2,093,814	850,000	In prog.	....	....	....	....
Covington and Lexington	Ky.	38	1,430,150	1,100,000	In prog.	....	....	....	....
Frankfort and Lexington	"	29	357,218	....	584,902	87,421	44,250	....	80
Louisville and Frankfort	"	65	....	....	....	....	....	....	....
Maysville and Lexington	"	....	....	....	In prog.	....	....	....	....
Cleveland and Pittsburgh	Ohio.	100	1,239,450	1,371,000	2,963,756	194,429	123,306	6	93
Cleveland, Painesv. and Ash.	"	71	....	....	....	....	....	....	....
Cleveland and Columbus	"	135	3,027,000	408,200	3,655,000	777,793	483,454	12	116¼
Columbus, Piqua and Indiana	"	46	....	....	2,000,000	....	....	....	98
Columbus and Lake Erie	"	61	....	....	....	....	....	....	....
Cincinnati., Ham. and Dayton	"	60	2,100,000	500,000	2,659,653	321,793	200,967	....	98
Cincinnati and Marietta	"	....	....	....	In prog.	....	....	....	72½
Dayton and Western	"	40	310,000	550,000	925,000	Recently	opened.	....	80
Dayton and Michigan	"	20	....	....	In prog.	....	....	....	....
Eaton and Hamilton	"	36	....	....	....	....	....	....	70
Greenville and Miami	"	31	....	....	....	....	....	....	....
Hillsboro	"	37	....	....	In prog.	....	....	....	....
Little Miami	"	84	2,370,784	....	2,634,157	526,746	314,670	10	119½
Mansfield and Sandusky	"	....	900,000	1,000,000	1,855,000	....	....	....	....
Mad River and Lake Erie	"	167	2,387,200	1,767,000	4,110,148	540,518	113,401	....	95
Ohio Central	"	57	....	....	In prog.	....	....	....	....
Ohio and Mississippi	"	....	....	....	"	....	....	....	97
Ohio and Pennsylvania	"	187	1,750,700	2,450,000	....	Recently	opened.	....	....
Ohio and Indiana	"	....	....	....	In prog.	....	....	....	....
Scioto and Hocking Valley	"	....	....	....	"	....	....	....	....
Toledo, Norwalk and Clevel'd	"	87	552,000	800,000	1,317,140	Recently	opened.	....	.. ..
Xenia and Columbus	"	54	1,092,137	119,500	1,257,714	237,506	135,368	15	....
Evansville and Illinois	Ind.	81	....	....	In prog.	....	....	....	....
Indiana Central	"	....	....	....	"	....	....	....	....
Indiana Northern	"	131	....	....	"	Recently	opened.	....	....
Indianapolis and Bellefontaine	"	83	....	....	"	....	....	....	105
Lawrenceburg and Ind	"	....	....	....	In prog.	....	....	....	82
Lafayette and Indianapolis	"	62	....	....	....	Recently	opened.	....	78
Madison and Indianapolis	"	88	1,650,000	750,000	2,400,000	516,414	268,075	10	85
Peru and Indianapolis	"	40	....	....	In prog.	....	....	....	70
Terre Haute and Indianapolis	"	72	632,387	663,100	1,353,019	105,944	71,446	4	108
Rock Island and Chicago	Ill.	....	....	....	....	....	....	....	....
Chicago and Mississippi	"	113	2,400,000	4,000,000	4,600,000	....	....	....	....
Illinois Central	"	....	....	....	....	....	....	....	136
Galena and Chicago	"	92	1,932,361	500,000	In prog.	473,548	286,152	....	124
Michigan Southern	Mich.	315	2,499,410	2,629,000	6,480,246	592,187	298,046	....	118
Michigan Central	"	282	1,000,000	4,067,396	8,614,198	....	....	8	106¼
Pacific	Mo.	38	1,000,000	none.	In progres	Recently	opened.	....	....

The statement of the Banks for the last week show a larger contraction of loans for that period than during any similar one since the adoption of present system of reports, on the 6th August last, as will be seen by the following comparative statement.

	Aug. 6.	Oct. 15.	Oct. 22
Loans	$97,899,199	$87,837,277	$85,367,981
Specie	9,746,441	11,350,152	10,303,253
Circulat'n.	9,513,053	9,466,744	9,389,542
Deposits	60,579,797	59,168,774	55,748,789

It will be observed, that the loans have been curtailed in three and one half months, $12,500,000, nearly $2,500,000 of which was accomplished last week. The deposits for the week also fell off $3,423,000. This latter large decrease is accounted for by the deminution of receipts by merchants from customers incident to the close of the season. In view of these facts, it is surprising that the effects of the late "panic" were not more disastrous.

New York and St. Louis.

The public will rejoice at the announcement that a continuous railway track is now open from this city to Alton, Illinois, on the Mississippi twenty miles above St. Louis. These two great cities are thus brought within about forty eight hours of each other, travelling time, and passengers are ticketed through from New York to Alton and St. Louis at the Michigan Southern railroad office in this city. We congratulate our friends at the West, that the "close of navigation" will present no obstruction this winter, to travel.

Evansville, Indianapolis and Cleveland Railroad.

At the late session of the Board, we learn, the Evansville, Indianapolis and Cleveland Staight Line railroad was permanently located from Union to Cleveland, on a straight line, and from Evansville, running down the White river valley on the East side of the river. The stock returned was $882,482 00. Stock books remain open until the next February session. The road not being prepared, the letting was postponed until the first Monday in December next. Franklin Harden and William S. Turner were elected Directors to fill vacancies in the Directory. Henry C. Moore, late Chief Engineer of the Central railway, was elected Chief Engineer of this road, in the place of Wm. J. Ball, resigned.

Land on the Terre Haute and Alton Rail. road.

It will be seen by reference to the Mr. Rockwell's advertisement in this *Journal*, that he offers a farm for sale which is favorably located near the above road, rnd in convenient proximity to the Illinois central road.

Railroad Iron.

By an advertisement of J. H. Austin & Co., in to-days Journal, it will be noticed that orders for T rail are solicited from England. This is a good sign and gives room for hope that prices will recede, somewhat, now that the continental demand is less than the supply.

Collin's Patent Ventilators.

We would invite attention of those interested in the ventilation of cars and engine houses, to the advertisement in another column of Messrs. Baker and Williams, 406 Market Street, Philadelphia. These ventilators are said to possess great merits, answering all the purposes intended.

Journal of Railroad Law.

THE EXTENSION CLAUSE OF THE CHARTER OF THE BELLEVILLE AND ILLINOISTOWN RAILROAD CO.

The construction of this clause by Judge Underwood, of Illinois, in the case of *Gregg & wife vs. the Belleville and Illinoistown Railroad Co.*, is entirely opposed, and it would seem, justly, to the powers claimed by the company. The cause will, however, probably be carried to the Supreme Court for further examination.

The case turns upon the construction and effect of the 17th section of the charter, which is as follows:

"Said company shall have the power to extend to, and unite its railroad with any other railroad now constructed, or which may hereafter be constructed in this state; and *for that purpose* full power is hereby given to said company to make and execute such contracts with any other company as will secure the objects of such connection."

Thus the only mode of extending the road is by *contract*. But can the *extended* road be constructed, equipped, and used before the completion of the main road from Belleville to Illinoistown? Or is such right to contract, limited? The meaning of a law must be gathered from all its provisions taken collectively. A corporation possesses only the powers expressly given, or necessarily implied, a salutary provision in this age of charters.

We subjoin the leading points of the decision:

1st. Until the construction of the railroad from Belleville to Illinoistown, the power to extend is not operative. The road must exist before it can be extended. The main road must not be used as a mere *cover* for the extended road.

2d. Can private property be taken for the extension against the owner's will? In regard to the main road power to condemn lands is expressly secured. Is it to be implied in regard to the extension?

The law will imply what power is necessary to carry out delegated powers, but nothing further. Private property can only be taken without consent, by virtue of express authority. Gillenwater vs. Atlantic and Mississippi railroad Co., 13 Ill. R. 4—2 Kent's Com. 339.

3d. Can the company cross other roads "constructed or to be constructed" on the route to Alton? The power to cross other roads is given in constructing the main road from Belleville to Illinoistown, and is said to be *implied*, in regard to the extension. But the company can extend to one road and only one; when their road is so extended, the power to extend is exhausted. This view is confirmed by an examination of the charter.

4th. No private law, can by the constitution embrace more than one subject.

Does the charter in question embrace more than one subject? Does it authorise the construction of another and different road in addition to the road designated in the title to the act? A railroad from Belleville to Illinoistown is one thing—one subject, to which few persons would object to have embraced in a charter. While a railroad from Illinoistown to Alton is a different thing, a different object, relating to a different line of travel, and involving and affecting different localities and interests. In some respects and for some purposes they would be united. But for most objects of business, trade and travel, they would be independent and separate roads, as much so as this road and the Ohio and Mississippi road. The extended part of this railroad, connecting with the Chicago railroad at Alton, would be the principal road, while the road covered by the title of the law, and provided for with such elaborate detail, would be a mere incident to the other. The road, when so constructed could no longer be embraced under a less title than the Belleville, Illinoistown and *Alton* railroad.

In the next place is this charter a private or local law? Railroad charters are private laws. They are contracts between the government and the company, which cannot ordinarily by affected by legislative interference. Their uses may in a certain sense be called public, but the corporations are private equally as if the franchise were vested in a single person. 2 Kent's Com. 272, 275; 1 Black. Com. 86 n. 21; Angel and Ames on Cor. 28—.The provision in the last section of the charter, that it should be "taken and received as a public law in all courts and places," only dispenses with pleading and proving the charter, that would be otherwise required, by the common law. 1 Greenl. Ev. Sec. 481. This does not make the charter a public law for any other purpose. Unless the law be regarded as private the legislature may hereafter modify or repeal it. Richland Co. vs. Lawrence Co. 12 Ill. R. 8. The constitution cannot be evaded, nor the rights of corporations destroyed by the declaration in an act that it shall be taken as public law.

It is also a local law. Its title, its extent, the county where it operates and its details are local; and in no sense can it be called a general law.

The supreme court of Georgia, under a somewhat similar constitutional provision, have held that so much of an act as is foreign to its title, is void. Brothro & Kendall vs. Orr and others, 12 Georgia R. 36, (Reported at length in the American Law Register for August, 1853.) A part of an act of the legislature may be rejected as unconstitutional and the residue held valid. Edwards vs. Pope 3 Scam. R. 470; People &c. vs. the Auditor, 12 Ill. R. 307. If, therefore, the 17th section of this charter authorizes the construction of a railroad from Illinoistown to Alton, then that power is unconstitutional and void in consequence of not being embraced in the title of the act passed.

If, however, the section admits of two interpretations, one of which brings it within, and the other presses it beyond the constitution, it is the duty of the court to adopt the former construction, because a presumption ought never to be indulged that members of the legislature meant to usurp any unconstitutional authority, unless that conclusion is forced upon the court by language altogether unambiguous. United States vs. Coombs 12 Peter's R. 76. Should the termini of this road be extended to and united with the termini of the other important lines that converge at Illinistown, it could still be called the Belleville and Illinoistown railroad; and the 17th section will have a force and effect of real practical utility to this corporation. Any other construction is contrary to the title of the act and the scope of its provisions; against the well settled rules of construing such charters, and at war with the constitution of the State.

Thus Judge Underwood, in effect decides, that if the extension clause be constitutional, it is only so in view of the prior completion of the main road.

THE RIGHTS OF LUNATICS UPON RAILROADS.

The 14th volume of Barbour's Reports of the Supreme Court of our State, contains the decision of the case of *Willetts' vs the Buffalo and Rochester railroad company*, in which the plaintiff had been nousnited by the circuit court, and now moved the court to set aside the nonsuit, and grant a new trial.

The action was brought by the father and administrator of his deceased lunatic son. He was journeying under his father's care from Utica to Buffalo, but at an intermediate point the father left the train to procure refreshments, and in consequence of his delay, the train proceeded without him, the lunatic son remaining therein, the conductor inquired for his ticket. He offered a hotel-card but had no other, and was upon the stopping of the train, ejected from the car, and in a few hours killed on the road, by a locomotive of the defendants. The father purchased two through tickets at Utica.

The court refused to set aside the nonsuit, or grant a new trial in this case, and, upon the evidence, we think justly. When the father bought a ticket for his lunatic son, he impliedly promised to take due care of him.

The following were substantially the considerations upon which the decision was founded.

If the deceased were *sane* he could not, if living, have sustained an action in a case of this nature. He would have been chargeable with negligence, and with having contributed to his own injury, and any negligence of the conductor would not have altered the case. If the deceased was sane, he was unlawfully on the road.

But deceased was not sane. And if the conductor, knowing this, had ejected the lunatic from the car, the company is liable for any accident which befel him. There is no evidence, however, that anything like notice of the insanity of deceased was given to the conductor.

It has been contended that the conductor was authorized by law to eject a passenger from the car only when he has refused to pay his fare, and that the fare of the deceased having been fully paid, he was entitled to remain. But the conductor had no knowledge of the fact that the fare had been paid. When a passenger is called on to show his ticket, he has a duty to perform. He has no right, in such a case, to sit in silence and motionless. The fares are usually paid by the passengers before coming into the cars, and seated as they are, promiscuously, it is impossible for the conductor always to recognize those who may have paid to him. A railroad company may establish reasonable rules for the conduct of their business, and these rules may be deemed an element in the contract between them and the passengers, and the violation of these rules may be regarded a violation of the contract. So an innkeeper, may insist upon common decorum from his guests, and may turn them out of his house if too noisy. *Story on Bailments* §476. In the case of the *Commonwealth vs Powers*, 7 *Met.* 601, A conductor was justified in ejecting from a car a very troublesome individual, who had been accustomed to importune passengers, and who had been duly forbidden to go into the cars. Yet in

this case the passenger ejected had bought a passage ticket. But the conductor, not having been *notified* of the fact, was exonerated from blame.

When lunatics or children travel upon railroads they should be placed in charge of some one able to protect them. And if their guardians are negligent in discharging such duty, they who have been entrusted to their care must suffer the consequences.

Motion denied.

For the Railroad Journal.

Breaking Ground on the Black River and Utica Railroad, in the County of Lewis.

The Black River and Utica Railroad Company have this day commenced the construction of their road in Lewis County, by breaking ground near this village. The day has been auspicious, having been one of the beautiful of the "Autumnal Indian Summer," and the ceremonies have passed off with a great degree of satisfaction and pleasure, not only to the officers of the company, but to the citizens of the county who were out in large numbers, and also a good delegation from the adjoining counties of Oneida and Jefferson, notwithstanding only two days notice of the meeting was given.

This is truly the dawn of a new era in the history of this beautiful and flourishing county, for its citizens have been anxiously looking for and expecting the completion of the Black River canal for the last twenty years, which was actually commenced seventeen years ago, and is now only completed some three or four miles into the southern borders of the county, and with the prospects of a railroad being built through their county, even before the canal is finished, a new impetus is given to the business prospects of its inhabitants, and they begin to realize that they are soon to be connected with other portions of the State and nation, by a new link in that iron chain which binds so closely together distant States and cities.

The Black River and Utica Railroad Company, was organized in the month of January last, to construct a railroad from the city of Utica to the village of Clayton, on the river St. Lawrence, passing through the counties of Oneida, Lewis, and Jefferson, a distance of 108 miles.

An efficient Board of Directors was appointed who selected the Hon. T. S. Faxton, of Utica, for President and the Hon. E. G. Merrick, of Clayton, for Vice President. The surveys of the road were immediately commenced under the direction of Daniel C. Jeune, as chief engineer, and was prosecuted with due diligence until the 11th of August when the whole road was put under contract, including the grading, bridging, masonry, furnishing the ties, and laying the superstructure, to Messrs. J. S. T. Stranahan, Samuel Farwell, Charles G. Case, James G. Lund and Josiah W. Baker, one of the most able and experienced firms of contractors in the United States, and to show their confidence in the value of the stock, they subscribed for said stock to the amount of two hundred and eighty thousand dollars (280,000) and take one fourth of the payments on their contract in the bonds of the railroad company.

Work was commenced on the first 16 miles of the road out of Utica about the 1st of September, and the amount of work done in that month, according to the engineer's estimate, was about $10,000. There are now about 500 men at work on this part of the road, and it is to be completed to a point near Trenton Falls, by the 1st of June next. The balance of work in Oneida county, (about twenty miles,) will all be commenced during this month and drove on rapidly to completion. A large force of men is to be put on about 4½ miles of the road from this place south, and kept on during the winter, as it embraces the heaviest work in this county. The whole line of road will be commenced early in the spring, and the road is to be completed so as to be brought into successful operation by the 1st day of July 1855.

The sub-contracts are made for the delivery of the ties on the whole road during the coming winter.

Contracts have been made for the delivery of the iron on the opening of navigation next year, for the first sixteen miles, and also for the engines, passenger, baggage, freight, and gravel cars for the same, to be delivered prior to June 1st 1854.

A branch line is now being surveyed from Philadelphia in Jefferson county, passing near the Rossie and McComb lead mines, near the village of Rossie, and thence to Ogdensburgh, connecting with the river St. Lawrence near the extensive depot of the Northern Railroad. This branch will be about 42 miles, and the distance from Utica to Ogdensburgh will be 128 miles, which makes a shorter route between those two places by some 10 miles than any other projected road. The termination of the Prescott and Bytown railroad in Canada, which runs into the celebrated Ottawa region, is directly opposite the connection of this branch with the St. Lawrence, and the Grand Trunk railroad through Canada will pass through Prescott on the opposite side of the St. Lawrence, so that this road will connect with two important Canada roads, as well as with the Northern railroad of this State. A connection will also be made with the Grand Trunk road at Kingston, from the terminus at Clayton, so that travel from the East or West on the Grand Trunk road can take this route from either terminus.

The Potsdam and Watertown railroad, now being built, crosses this road at Philadelphia 18 miles East of Watertown, which will make a valuable addition to the business of this road, as the R. and W. road runs through some of the most flourishing portions of St. Lawrence county, and the distance saved by taking the R. W. and U. W. road at Philadelphia will be from 18 to 20 miles in travelling to our great commercial cities.

This road with its branch will pass through 17 villages, and in close proximity with 33 other villages, which will be tributaries to the business of the road. It passes through 25 towns located in 4 different counties, which are generally well settled and improved by an industrious and intelligent class of inhabitants.

It opens a direct communication to some of the most important rivers in Northern New York, and those which afford the greatest facilities for water power for any purpose, or perhaps, any portion of the Empire State.

In connection with this road, another railroad is very soon to be built from Utica south to Binghampton, and this connects with the New York and Erie railroad, and by other roads with the coal fields of Pennsylvania. It will make a direct route south to Philadelphia, Baltimore and Washington, and the State of New York will have a Central North and South as well as a Central East and West railroad.

I do not know of a railroad in contemplation in the State of New York, which will have superior advantages in its railroad, lake and river connections over this road, and its prospects for a large amount of business, when brought into successful operation, are certainly of a most flattering character. All vessels which navigate the bay of Quinte or the Rideau canal in Canada, can come directly to its wharves, at the beautiful harbor of Clayton, with perfect safety during the most severe storms which occur on the lakes or river, in the season of navigation, and the road must inevitably draw a large amount of business from these sources, as well as the business from the Great West through the lakes.

To parties of pleasure it holds out great inducements as it passes very near (within ⅓ of a mile) of the celebrated Trenton Falls, which are visited by thousands of people annually. After leaving Trenton Falls the traveller passes through a section of country of beautiful and picturesque scenery, and is landed by one termination in the midst of the "thousand islands," and by the other termination near the commencement of the rapids of the river St. Lawrence, and at either, is placed upon a great thoroughfare by steamboat, to the Falls of Niagara, or any other place on the lakes West, and to Montreal or Quebec or any other point on the St. Lawrence East. J.

Lowville, Lewis County, N. Y.
October 17th, 1853.

Inside and Outside Connected Engines.

The inside connection was resorted to in the early days of locomotive building as a remedy against the oscillations caused by the use of inclined outside cylinders and unbalanced drivers. The early engines were built also with a much less length of "wheel-base," or distance between centers of extreme wheels, than now, whereby any sinuous motion was manifested to a greater extent than when divided upon a longer bearing. By applying the power nearer the center of the axle, sinuous motion was reduced, but the horizontal and vertical motions, due to the action of the unbalanced forces of the piston and connections, remained in their full extent. After a time counterweights were suggested and it was soon found that they would operate beneficially upon all engines. By their aid the outside connection has become as steady as any other. Now that the sole merits of the inside connection is fully realized in its rival, there are are no longer any reasons for its continuance. It must be admitted to involve very serious defects which are not found in the other arrangement.

First, is the *crank*, which involves a great weight, a large expense, much friction, and considerable danger, besides requiring a very large space in which to work. A crank shaft for a 23 ton engine, weighs 1600 pounds in the rough, and costs, in that state, from fifteen to eighteen cents per pound, besides occupying a lathe from six to seven days in finishing. When finished, it will weigh six hundred pounds more than a straight axle of equal strength, which *excess* is itself equal to the weight of the straight shaft. That is, it is

twice as heavy as is necessary. The crank wrists are twice the diameter of the crank pin of the outside connection, and as in the case of so large bearings, with the short leverage of a nine or ten inch crank, the power is not exerted wholly towards the center of the crank wrist, but is exerted on a large surface, it is apparent that much of it is absorbed in friction. An extreme illustration of this loss may be made evident by a trial to turn an eccentric by power applied through the rod. The liability of failure of the crank is also great, there being very few roads having an equipment of inside connected engines, but what have a number of cranks broken yearly. During the year 1852, we remember that out of fourteen crank engines in use on the Boston and Providence road, there were eleven cases of broken cranks. The renewal of a crank costs a large sum, besides the cost of the crank itself, and the expenses of finishing it, as it requires a considerable detention of the engine, and the labor of drawing off and on the wheels, re-setting valves, etc. Cases of failure of crank are very frequent on other roads, and serve to swell largely the cost of engine repairs. All the objections which we have enumerated against the crank, are endured on the majority of New England roads.

The space required for the crank is a very serious objection to it. It occupies a great deal of room laterally, vertically and horizontally. Laterally the two cranks, occupy from 29 to 30 inches of the length of the axle between the boxes, which distance does not exceed forty to forty-one inches, leaving but a short space in which to crowd the valve motion, and the demands for this purpose have always been a favorite point in the arguments for a broad gauge, when in reality it was the unnecessary arrangement adopted for the locomotive, and not the incapacity of the gauge that causes the difficulty. Vertically, the space demanded for the crank is a great objection, as the center of the boiler must be as high from the rails for a five feet wheel, inside connected engine, as for a six feet 6 inch wheel, outside connection. The crank limits, by from 18 inches to 2 feet, the diameter of the driving wheel; and in any case, upon a road having low bridges and station doors, limits the proper height of the chimney by from nine inches to one foot. The cylinders are placed at a distance of 24 inches between centers, in the usual plan of inside connection, whereby the curve of the under side of the boiler saves but four inches for the clearance of the crank, over what would be had by placing it directly under the center of the boiler. A ten inch crank with seven inch journals, and with the strap and key of the connecting rod, and the vertical allowance for the motion of the springs, will require a distance, therefore, between the center of the axle and the under side of the boiler, of at least fourteen inches. But the crank does not alone limit this height; the link motion, which all builders are adopting, requires on an *inside* connection, a still greater height, so that sixteen inches to 17 inches from the center of the driving axle to the under side of the boiler, is quite a common allowance of height. This is from ten to twelve inches more than the outside connection requires. Horizontally the crank limits the length of the furnace, which is especially injurious in cases where a powerful engine is wanted on a short wheel base. Many of the engines built at the present day for western roads and destined to use green wood, have furnaces of from four to five feet outside length, the latter of which, with an inside connection would require a distance of nearly 7 feet between centers of drivers.

The crank engine also involves other objections. The offsett frame required by it is not as strong, as simple and as cheap as the straight frame. The valve motion for an inside connection must always be crowded, laterally and vertically. The rocker arms must be short, and offsett valve rods must be made. In cases of low-wheeled engines the cylinders occupy the room which should be devoted to the truck, and with a center bearing truck, there is not near room enough to get a proper depth and strength of truck frame, and at the same time to allow of a truck wheel of proper size. Again, the modern practice of builders of outside connections is to give from 22 to 26 inches stroke of piston for freight and passenger engines. This is generally approved of by railroad engineers and managers as making, with the larger wheel it allows, a steadier engine, and as reducing the wear of the machinery. But to increase the length of the inside crank from 9 or 10 inches, up to 12 or 13. would increase all the evils we have named, as it would require a heavier crank shaft and greater expense and friction, and at just as much danger of breakage, besides occupying more room, laterally, vertically, and horizontally.

As an application of our strictures upon this class of engines, we will notice the motive power of many of the New England roads, and especially of those running directly out of Boston, which assume to be equipped in first class style, and yet upon no one of which is there a modern and first class example of an outside connected passenger engine. Many of these roads have as good engines as can be expected in the use of crank engines, being of good proportions and workmanship. We instanced in a previous number the motive power of the Boston and Providence road, which for good construction and proportions will compare well with any in Massachusetts. The necessity for steady engines running at high speeds is as great on these, we presume, as on any road, while the character of their track is already favorable for these ends. And yet the speed upon the N. York Central and Hudson River roads, of the same gauge, and on the Lake Shore, New Jersey and Cleveland, Columbus and Cincinnati roads of four feet ten inches gauge, is greater than upon any of these roads. The size of driving wheels on all engines on these roads is limited also to but five and a half feet, while the greater part of the passenger business is done by engines having but 5 feet wheels. The Boston and Lowell road, built, and of the assumed character of a first class work, having no grade of over 10 feet per mile, except for a short distance near the Lowell station, and no bad curves, has but two engines, out of an equipment of 22, having drivers *as large* as five and a half feet. One of these has been rebuilt from an engine originally made by the Lowell Machine Shop, and from our own observation we can pronounce it more unsteady than the majority of outside connected engines on New York roads. Other crank engines, upon which we have rode on this line, are subject to very severe fore-and-aft oscillations, and the motive power generally upon this road is of an inferior class. The bridges on this line are very low, not much, if any, above thirteen feet from the rails, and the consequence is that only a very low chimney can be obtained, as the boilers set very high. The same disadvantage of low chimneys is also experienced by most of the other roads in the vicinity, most of the roads running out of Boston having bridges of less than 13½ feet from the rails, while the engines are inside connected, and have very high boilers.

The motive power of these roads is "behind the times" in character and capacity, and the reason for it is that these lines have never been influenced by that competition which must be the source of improvement in railway machinery. The motive power of New England roads has been fixed by the builders, and these have been in no ways hasty to adopt or encourage improvements. While the builders have sent work to distant markets, in which they have been compelled to compete with more stirring manufacturers, they have made efforts for improvement, but these have usually taken the shape of copies, and these not always faithfully rendered. When the New York and Boston railroad shall be opened for travel, and stocked, as it will be, with motive power in every respect first class, these builders will adopt some essential changes in their patterns. The outside connected engines by the Amoskeag Company, of Manchester, and by Messrs. Wm. Mason & Co., of Taunton, are nearest to the standard to which these changes must conform.

In making these remarks it is necessary to defend the outside connection from some charges which are made by those who call the *Boston* style of outside connection a fair sample of that arrangement. The cylinder attachment afforded by the outside connection has been pronounced by New England builders as less strong than that obtained by the inside connection. With the attachment of cylinder usually adopted by such of those builders as have made outside connections, we not only admit this as true, but emphatically endorse it. They have secured the cylinders, by a light flange on each, to the inside frame, and nave bolted to a light rail placed on edge on the outside. These always work loose after use, and especially where put to a hard strain. We have seen plenty of illustrations of this effect. Now we will venture to affirm that the cylinder attachment of the Paterson engines is more secure than that of any inside connected engines ever built in Boston. The smoke box is made of sheets ⅜ inch thick, with a bar of two inch square iron riveted around the forward edge, on the inside; the sheets are of double thickness, or ¾ inch, where the cylinder is bolted on, the flange of the cylinder rests upon the frame, while another wide flange reaches high up on the side of the smoke box, affording all the permanence of attachment that can be obtained by any plan. The cylinder attachment of the engines by the New Jers y Locomotive Works, which is made to a round smoke box of double thickness at the bottom, affords another instance of great strength of connection. There are other engines having cylinder attachments different from these, but affording at the same time all the security which can be required.

The steadiness of the outside connection has been well demonstrated, and those who like to be convinced by practical illustration can be accommodated by testing the motion of the engines on

the numerous roads we have cited as using this connection.

The objection to the radiation of heat by the exposed position of the outside cylinder, is one which can well be thrown onto the Boston built engines in its full force, as none of these have any adequate protection for their cylinders and chests, while the Paterson engines, and the fine new outside connections built by Mason & Co., at Taunton, have ample protections of this kind, while the result of their use shows that no loss of power can be detected in their performance.

As a conclusion to this subject we will give a list of the locomotive shops in the country, with the connection which they have *generally* adopted.

Portland Locomotive Works, Portland, Me. *Inside.*
Amoskeag do do Manchester, N. H..... *Both.*
Lowell Machine Shop, Lowell, Mass..... *Inside.*
Essex Co., Lawrence, " ..... *Both.*
Boston Locomotive Works, Boston Mass.,.. *Inside*
for passenger engines, for freight..... *Outside.*
Seth Wilmarth, Boston, Mass..... *Both.*
John Souther & Co. " " ..... *Inside.*
Wm. Mason & Co., Taunton, " ..... *Outside.*
Taunton Locomotive Co. " ..... *Inside.*
Rogers, Ketchum and Grosvenor, Paterson, N. J..... *Outside.*
New Jersey Locomotive Works, Paterson, N. J..... "
Danforth, Cooke & Co., Paterson, N. J... "
William Swinburne, " " .... "
New Castle Manufacturing Company New Castle, Del..... "
Richard Norris and Son, Philad., Pa..... "
M. W. Baldwin, " " ..... "
Ross Winans, Baltimore, Md..... "
Murray and Hazlehurst, Balt., Md..... "
A. W. Denmead and Son " " ..... "
Smith & Perkins, Alexandria Va..... "
J. R. Anderson, Richmond " ..... "
Wm. Ettenger & Co. " ..... "
Schenectady Locomotive Works, Schenectady, N. Y..... "
Cuyahoga Furnace Company, Cleveland, Ohio..... "
Niles and Company, Cincinnati, Ohio..... "
Moore, Richardson & Co. Cin. Ohio..... "
H. & F. Blandy, Zanesville, " ..... "
C. Cooper & Co., Mount Vernon, Ohio.... "
Nashville Manufacturing Company, Nashville, Tenn..... "
H. H. Scoville & Son, Chicago, Ill..... "
Palm and Robertson, St. Louis, Mo.....
(no information received.)

Almost the whole number of those shops designated as building the outside connected engine, have adopted that arrangement to the exclusion of any other.

Railroad Depot at Rochester.

The New York Central Company have just completed a large passenger station at Rochester of which the Democrat says:

The new offices on the south side, on Mill street, are the best, as regards size, arrangements and accomodations, provided by any railroad company. The officers have convenient and accessible rooms, and in the rear of the ticket office are apartments for persons awaiting the arrival and departure of cars, furnished with easy wall seats, like those in vogue in the halls of hotels. Other necessary rooms and fixtures are provided also. The dimensions of the depot are about as follows: Length 320 feet, width 116ft., height of front walls and roof 60 feet. The roof is made in umbrella form, and is a half circle, springing from side walls 36 feet high. The front office is 25 feet square, and the apartments in the rear about 20 by 28 feet.

Central Ohio Railroad.

The fifth annual report of the President and Directors, to the Stockholders of this Company, has been received and is presented in full herewith.

On the 18th day of January last the track of the Central Ohio Railroad was extended to Columbus; since which time our Trains between that city and Zanesville have been run with great regularity; not a single trip having been lost, although in some few cases delay was caused by unavoidable occurrences.

With the addition of the covering of three bridges —a small amount of work on sections 52 and 56— the filling up of some trestle work which is being supplanted by masonry—some ten thousand dollars worth of masonry and about twelve thousand yards of ballasting, the Western Division of the Road will be complete. We may then safely place it in the front rank of first class Roads; every thing being built in so substantial a manner as to admit of the heaviest Trains and the highest rates of speed admissible upon any Road economically and safely managed. As evidence of this, our Express Trains are now run, between stops, at as high speed as is made upon any Road in the West whilst we have much pleasure in saying that out; of mare than sixty thousand passengers since the 18th of January last, not a single passenger save one—and he but slightly, and that by his own imprudence—has been injured upon our Road. Some injuries to employees of the Company which have occurred, had no relation to the structure of the Road.

The cost of the Western Division up to present time, as seen by the Treasurer's exhibit is $1,172,516,71—equal to $19 873 per mile.

The expenditures upon the Eastern Division have been $783,983,71.

The expenditures for Machinery &c., common to both Divisions have been $263,276,50.

These different sums make the aggregate expenditures $2,219,776,90, which deducted from $2,839,-639,24 the gross resources of the Company, show a balance of resources on hand available towards ths completion of the Road of $619,862,34. In the amount however, there is the sum of $50,886,23 debits on the Treasurer's books, being a balance of unsettled accounts, the larger portion of which will probably be absorbed by unadjusted claims for work done, materials furnished, and for right-of-way cases.

Predicated upon the estimates of a former Chief Engineer of our Road it was assumed that the resources on hand named, would have been sufficient to complete both Divisions; but the work between Newark and Columbus, although managed with a rigorous economy, has proved to be much more expensive than was estimated. This has been partly owing to the peculiar character of the country traversed by the Road, and partly to the advance in the price of labor and materials. But nothwithstanding all this, we believe it is below the average cost of Railroads in Ohio. A change too in the location of about 33 miles of the most expensive portion of the Eastern Division of the Road, made by Mr. Medbery, late Chief Engineer, under the sanction of the Board, whilst it has doubtless made valuable improvements upon the first location—in the saving of distance, and the relief of curvature and grades—will unquestionably add to the expense of its construction. To this must be added an order of the Board authorizing all the tunnels (of which there will be four or five, ranging from 80 to 500 feet in length) and the masonry of the bridges to be enlarged to the requisitions of a double track, together with the great advance that has taken place in the price of labor and materials, and especially in the cost of Rail and Machinery. All these things coming together compel an enlargement of our estimates of the cost of the Road, and indicate the necessity of an addition to our available means.

For this purpose, the Board whilst anxious to restrain stock issues to the smallest possible amount, have felt the importance of making a better basis for a new loan than would exist without an addition to the stock list. They have accordingly authorized a sale of $200 000 of additional stock, and the issue of not exceeding $800,000 of Bonds;* which Bonds it is proposed to secure by a mortgage covering the whole line of the Road from Columbus to Wheeling. This amount will be amply sufficient to complete and fully equip the Road for a large traffic.

BUSINESS OF THE ROAD.

That it will be necessary to provide a large stock of Machinery for the trade of the Road when opened through to the River, we have ample evidence in the development of the business of the portion between Zanesville and Columbus. An exhibit of its prospective traffic, made by the President in 1851, and which at the time was rated as a very sanguine statement, estimated the travel of the Western Division at less than 33,000 per annum. The actual number of Passengers upon our Road, since its opening to Columbus up to 23d of the present month, a period of seven months and five days, has been 60,341—equal to 102.439 per annum, or *more than three times as much as the amount estimated in the Exhibit of* 51 !

The gross receipts of the portion of the Road in operation for the first 5 months and 12 days ending 1st July last, were..... $52,788 07
From which deduct expenses..... 20,750 18

Leaving as nett receipts..... $31,977 89
Appropriated as follows:
Paid interest..... $16,227 00
Three per cent. Dividend, on stock paid up..... 12,718 58
Surplus..... 3,032 31

$31,977 89

Small as this amount is, as compared with what of course is anticipated for the Road when its proper and most direct outlets to market are reached, and its full connections with travel avenues are made, we believe it is unexampled for a *local Road*, such as it is *yet*, in the first stages of its operations. But satisfactory as it is, there is a still more gratifying feature in the decided evidences of increase since the 1st of July. The receipts from passengers alone, for the 53 days ending 23d of the present month, have been $14,772 85, whilst for the 5 *months and* 12 *days* preceding it was but $27,637 19; showing a daily average of $109 18 greater than the daily average of the fractional half year, or equal to 60 per cent. increase ! Within the same 53 days, although the dullest part of the business year, the freight receipts have increased at the rate of 25 per cent.'

THE COAL TRADE.

The contract for the Bridge across the Muskingum River required its completion by December of last year. It is yet unfinished, although now rapidly tending to completion. The risk of fire, in consequence of the site of the Bridge being in such close proximity to the mills upon the canal and the present upper bridge over the Muskingum, we deemed too imminent to justify a wooden structure; and on deciding upon iron, neither the contractors nor ourselves appeared to be aware of the time which would be lost in the preparation of the plans and patterns of a form of bridge new to the Mississippi Valley. Much annoyance and present loss has resulted to the Company from the delay in its construction, but when finished, we think it will reflect credit upon the contractors, whilst its permanency and beauty will give reputation to the Road.

The delay however, in the completion of this bridge has retarded the developement of the coal trade and has probably, already lost to the Company a very handsome revenue which might have been controlled from that source. But we have satisfaction in knowing that the benefits to result from

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* This $200,000 of Stock has since been sold, and the Board have passed an order prohibiting the sale of any more or the acceptance of any additional Stock Subscriptions. *The Stock Books*, accordingly, *have been formally closed.*

this trade are soon to commence. We have the track already extended from Zanesville to the mines—in its course towards the Ohio River—so that no delay need occur in the forwarding of coal after the completion of the bridge. Contracts for delivery at Columbus and Xenia are already being made. At Columbus, where the coals from Muskingum and Hocking are both known, parties are offering to contract for Muskingum coal at 30 cents per ton above the price of coals from Hocking. As the distance from Columbus to the two setts of mines would be about the same, the difference in quality as thus indicated, will always give our coal such a decided advantage, that the Hocking Valley Rail Road, if built, cannot be a very formidable competitor with the Central Road for this trade. A recent personal examination, also, of the coal of the Wabash valley, in Indiana, has satisfied us that we shall not only have the control of the Xenia, Springfield, Urbanna, Piqua and Dayton markets; but, for some purposes, the superior quality of Muskingum and Guernsey coals, will justify their transportation as far west as Central Indiana.

EASTERN DIVISION.

The exhibit of the Treasurer shows that, in view of the great scarcity of labor compared with its extended demand in the West, we are making a very fair advance with the work on this portion of our Road. The 16th section only will prevent the opening of the first 26 miles by November; and by Christmas, we have hopes of extending our track to a point half way to Wheeling from our temporary terminus at Zanesville. The remainder of the line to the Ohio River, embraces our heaviest work, and will probably not be opened through for a twelve month.

We have on hand, and contracted for, 4500 tons Rail for this Division of the Road; and shall need about 4000 tons more. Previous to our being in a position to justify contracts for Iron, it began rapidly to advance in all the markets, and under the advice of parties intimately acquainted with the Iron trade after we became in a position to contract, we were induced to delay purchases until we should more imperatively need the Rail. The existence of various concurrent and extraordinary influences in regard to this matter has demonstrated the at least occasional fallacy of commercial calculations. There is at present no probability of any important reduction in the price of Iron; and we shall accordingly have to submit to a large increase over the cost of the Rail for the Western Division. While this necessity is a subject of much regret to the Directors, they cannot charge themselves with any remissness in the premises. They could not feel justified in buying two-thirds of a million Dollars worth of Rail before means were provided upon which even to base a negotiation.

THE EASTERN TERMINUS.

In addition to the delays produced by the action of other municipal officers, whose constituents had voted stock for the Road, the effort of the authorities of Wheeling to govern the location of our line through the county of Belmont, by witholding her subscription of $250,000 previously volunteered for us, caused a serious loss of time in making up our stock list for the Eastern Division. When, however, we had made arrangements to build the Road without her aid, and distinctly expressed the determination to locate our terminus directly within the corporate limits of that city, provided she would co-operate with us in the obtainment from the State of Virginia of the necessary legislation to authorize the construction of a Rail Road Bridge across the Ohio, and when we proposed to build such bridge of at least the same elevation as her Suspension Bridge, and also to have inserted in the law every reasonable guard for the protection of her interests, or the interests of the stockholders in the Wheeling and Belmont Bridge Company, we certainly anticipated a cordial *welcome* to our plans instead of *opposition*. We relied upon this the more confidently from a conviction, which we still entertain, that the Central Ohio Road is more important to the manufacturing interest of Wheeling than all the other Rail Roads together, that terminate or propose to terminate in her vicinity. But we were mistaken. She has either underrated the value of our Road, we have miscalculated the ordinary springs of action, *or there are other interests besides the public welfare at the foundation of the opposition*. That we may not be misconstrued we do not hesitate to express the belief that this opposition originates in a determination to make the several Roads terminating opposite Wheeling become tributary to the Suspension Bridge, or compel them to buy out the stock, which we are informed, is not yet a dividend paying stock. If in this supposition we have done injustice, we shall regret it, but we cannot otherwise account for the obstacles thrown in the way of our making what we deemed the most advantageous terminus for our Road, and one which we believed would confer immeasurable advantages upon Wheeling herself, without costing her a dollar.—Nearly a year's efforts and forbearance have satisfied us that we shall not have justice done to our Road, nor the facilities furnished in that city for a double junction with the Baltimore and the Hempfield Roads, until we shall have manifested our ability to do without it. Fortunately for us, circumstances not only admit of this, bul furnish a more enlarged and more favorable system of Railroad connections than we at first contemplated. At the point where our Road falls into the ravine of the Ohio River we can mke interchanges with the Baltimore and Ohio Road at a saving of eight miles of transit. The mode of interchange can be something like that used by the Philadelphia, Wilmington and Baltimore Road across the Susquehanna. It is true that any system of ferriage will not be so desirable as the use of a Railroad bridge carrying traffic directly to and from the point of transfer; but it will be cheaper and more expeditious than drayage across the Suspension Bridge at Wheeling. At the point we refer to, the Company would not be subjected to any woarfage or other city expenses, and will have every possible facility for making such lines of approach and departure as the Engineer may prefer. The Directors have accordingly ordered a branch from their main line at this point to accomplish the connection with the Baltimore Road and for River transfers. Donations of ample grounds for depots and machine shop purposes being made, the Company will be at no expense at this place, except the cost of grading, and of proper structures.

The Baltimore connection then, being provided for more advantageously than it could be at Wheelings if either ferriage or the use of the present bridges be contemplated, the next consideration of the Board was given to the most favorable modes of connection with the lines of Road leading to Pittsburgh and Philadelphia. We had made the location of our main line to West Wheeling, upon the Ohio side, where we proposed to make a *temporary* terminus. It was made temporary to guard against the exhaustion of our chartered powers, but with the expectation of changing it as soon as we could obtain the necessary legislation, and become pecuniarily strong enough to build a Bridge without the aid of other companies, if that could not be obtained readily. When it became evident that the desired legislation would not be furnished, the Board rescinded the order indicating the *terminus*; confirmed the location as far as within one mile of that place, and authorized the extension of the line up the river to such point as should admit of the most favorable connections with the Pittsburgh and Philadelphia lines of Railway. The Cleveland and Pittsburgh R. R. Co. having obtained the necessary legislation to authorize the extension of their line, down the river from Wellsville, so as to connect with our Road, and having the promise of means sufficient so to extend it, and also to extend it up the river to a point where it meets the Ohio and Pennsylvania Railroad, was naturally indicated as a connection that would give us not only advantageous access to Philadelphia through Pittsburgh, but also by the Alleghany Valley Road, with its attractive broad gauge, directly to New York, over the New York and Erie Railway. Whatever preferences we may have felt to make these same connections over the Hempfield and the Chartiers Valley Roads, on account of the less *lineal* distance, yet the *time* in transit by the way of the ravine of the Ohio, with its level grades and easy curvature, will probably be quite as short as by the Hempfield Road, if the transfers at Wheeling have to be made by drays and carriages over Zane's Island. This will be especially the case, if, as we anticipate, we shall be able to make a contract similar to the one we have with the Columbus and Xenia Company authorizing the transmission of traffic of *or* for our Road over theirs, in our own cars, either in regular or special trains.

As the Cleveland and Pittsburgh and Ohio and Pennsylvania Roads have the same gauge as ours, such an arrangement would be *a practical extension of our line to Pittsburgh, and the etablishment of our terminus in juxta-position with the terminus of the Pennsylvania Central, the Alleghany Valley and the Connelsville Railroads!* With all this we shall hold just as favorable position for connection with the Hempfield Railway as any other Road terminating *opposite* Wheeling.

Whilst there are but few Roads that can boast of a *double* junction so important as will be the Baltimore and Ohio and the Hempfield Roads, this arrangement will furnish us more advantageously than to others the unparalleled advantage of *five different Great Lines, competing for our interchanges.*

THE QUESTION OF GAUGE.

The reference we have made to the benefits of of which we may avail ourselves in a continuous gauge to Pittsburgh, deserves a passing explanation. Within a given distance—one under which the machinery of a Road will not be permitted to pass too far, or be too long absent from the supervision of its proprietary—there is doubtless a great advantage in continuity of gauge; but we believe the experience of Roads in operation, demonstrates it a mistake to suppose that this plan of interchanging the use of machinery over long lines, owned by various interests and under different degrees of vigilance and responsibility, could do otherwise than work more inconvenience and loss than the labor and expense of transferring, at given intervals, not only passengers but freights. We think then that the advantage of a continuous gauge for long lines owned by different interests is only ideal, even where there is nothing in circumstances to make it objectionable. But when this idea is carried through an extended territory, where the gauge of every other road is different from the one adopted, the *fancy* becomes a *fallacy* of a fatal character. Roads in the Valley of the Mississippi which are projected and built without reference to local trade, or with a principal reliance on through trade will be failures. And when a road, aiming to be a great through route intersects repeatedly the local lines of a country, having all a different gauge which at the same time may be intersected by a rival line with coincident gauge, it is likely to prove that the hundred tributary streams are sacrificed for the sake of retaining unwasted the comparatively feeble waters of the fountain from which it starts. The dangers of such an isolation are beginning already, we understand, to be felt by two roads in Ohio that commenced building with the Pennsylvania and Indiana gauge, which are identical.

GEOGRAPHICAL POSITION OF OUR ROAD.

Every additional developement in the rapidly changing character of the business relations of the country have only induced additional confidence in the strength of our position, and additional satisfaction with the location of the Central Ohio road.

The intense activity and interest which the minds of our people manifest at this time in public works have already developed all the projects of railroads for Ohio which are likely to be indicated for many years to come, and *more* than can be built at this time. But amidst them all, between a fortunate combination of circumstances and the topography of the country north and south of our line there is no road yet projected, nor likely to be, that will abstract any important portion of our *local* trade; whilst for *through* business our geo-

graphical position is such as to leave us without an even handed competitor. We are aware that rival interests have endeavored to depreciate the value of our geographical position by a reference to the grades and curvature to which we shall be subjected for about thirty miles through the county of Belmont. The comparison of roads by their maximum grades, is a very fallacious way of judging of value. A frequent succession of grades of 50 feet to the mile over a stretch of line of 20, 50 or 100 miles in extent is certainly much more objectionable than the occurrence of a grade of 76 feet to the mile at the passage of a *single* summit in a long line of road, especially if a large portion of the balance of the road is level, or practically so. The measure of objection upon the score of grades, if they be workable at all with a single engine, is not the inclination of any particular plane so much as their frequency of occurrence and their disposition—their relation to each other. In view of this the distinguished engineer, Mr. Latrobe, introduced into the location of the Baltimore and Ohio road, maximum grades of 116 feet to the mile, instead of 80 feet to the mile with less favorable "disposition." In the matter of curves we have no portion of our line, between Zanesville and the Ohio river, with such stringent curvature as some that exists upon the road between Zanesville and Newark, and yet the latter portion of the road we have run under schedule at 35 miles per hour.

We have no hesitancy in expressing the belief that in alignment and grades our road and its affiliate lines, south-westwardly, westward and north westerly, may claim at least an *equaltiy* with the best lines radiating from Pittsburgh and Wheeling, or branching from the Baltimore and Ohio road, whilst in lineal distance, with the exception of the Parkersburgh route between Baltimore and Cincinnati, will be a part of the shortest line of communication between Washington, Baltimore, Philadelphia and New York, in the east, and the Capitols of Ohio, Indiana and Missouri, and the cities of Cincinnati, Louisville and St. Louis in the west. With reference even to the Parkersburgh route from Baltimore, we believe that the superiority of the Central line west of Zanesville, through Ohio, Indiana and Illinois, in point of grades and curvature, over the route through the more broken region in the vicinity of the Ohio river, together with an exemption from the delay to which travel will be exposed in transfer through the city of Cincinnati, from the eastern to the western lines, and a like exemption from the expense of transferring freights, will make the Great Central route the favorite line of travel between St. Louis and Baltimore and Washington. As preparatory for this result, an unbroken chain of railroads for the whole route is partly built or in process of construction, and will be soon complete. Taking up the line of our connections at Columbus, the Columbus and Xenia road, by the instrumentality of the Xenia and Dayton road, will be practically extended to Dayton. The Dayton and Western railroad is in operation to the Indiana State line. From there the Indiana Central—(with which the Dayton and Western is consolidated)—will be complete to Indianapolis in the coming month of October. From Indianapolis to Terre Haute the road is in successful operation. From Terre Haute to Alton on the Mississippi, within twenty-five miles of St. Louis, the whole line is under contract. For the construction of a road from Terre Haute to St. Louis direct, another company is organized, but with some legislative obstructions thrown in their way, by what is called "Illinois policy," they are yet delayed in their work. From Indianapolis another magnificent chain of roads, stretching to St. Josephs on the Missouri, and all of which except about 37 miles, is either built or under contract, lies under this same 40th parallel of North latitude, along which the Central Ohio and the Indiana Central railways are laid.

These several interests we indicate as constituting the Grand Central Trunk Line, which taking into consideration either perfectness of relation to the east and west business of the country, fertility of soil, density of population or its affluence of general trade, is not now equalled in the valley of the Mississippi, and will never be surpassed.

It is needless to tax your patience with a list of the roads destined to be tributary to this great arterial line; but a glance at the map of Ohio, Indiana and Illinois, with the various roads converging upon the Central route, will show the propriety of the order which we have made to adjust our tunnels and masonry with a view to a double track.

COMPETING ROADS.

If the gauge of the "Steubenville and Indiana Road" be altered to the Ohio gauge which is said to be in view—it is probable that an arrangement would be made for dispensing with the construction of their road, as contemplated by that company, between Newark and Columbus. This being done, the course of that road diverging rapidly from ours at Newark and running at an average of about twenty-five miles away from it, cannot affect our local trade, and will not interfere with the retention of our due share of through business.

The Marietta and Cincinnati road is located at no place, nearer than about thirty-five miles from our road, until it turns towards its eastern terminus, when it approaches our line at nearly right angles. As the principal reliance of that road for through traffic is upon its relation with the roads of Kentucky striking the Ohio east of Cincinnati, it will not be, strictly speaking, a competitor of the "Central Ohio," for either through or local trade.

The "Pittsburgh, Maysville and Cincinnati road" so called, is located between Cambridge and McConnelsville, and so much of it wtll probably be built. It will bring to us some traffic that might otherwise pass down the Muskingum river.

The "Western Railroad"—projected to start from Bridgeport, opposite Wheeling, and after passing up Indian Wheeling Creek, running thence northwesterly to intersect with the Steubenville and Indiana road and thence northwesterly through Knox county—whatever influence, if built, it may exercise upon that road it cannot affect the trade which our road claims.

So far as the trade and travel of the great north west is concerned the intimate relations established by the Columbus, Piqua and Indiana road with lines of road leading to Fort Wayne, Peru and Michigan city, in Indiana, will bring for transit over our entire line, the trade and travel between that region and Baltimore and Washington city.

In the consideration of the great through business between the east and the west, much stress is occasionally laid upon the more favorable grades and alignment of the roads leading by the Lakes. As compensatory for these advantages, the lines lying directly between the seaboard and the more populous portions of the west have the advantage of a great saving of distance and the use of a cheaper fuel. They traverse a coal region of more than 6300 miles in extent, whilst the lake routes do not touch the coal field in any part of their course. Experiments have already demonstrated a great saving by the use of coal upon locomotives, even where wood costs nothing but the cutting and hauling. Before many years shall have elapsed, the great lines at the north will be compelled, by the increased cost of wood, to get their fuel from the regions traversed by their southern rivals.

CONTRACTS WITH OTHER ROADS.

The contract with the Cincinnati, Wilmington and Zanesville railroad company, looking to very intimate relations, stipulates that the Central Co. shall subscribe to the stock of the other in the sum of $100,000, payable in six per cent. income bonds. As the other company pays six per cent interest upon the stock until the road shall be placed in operation, this obligation is practically but a loan of the credit of our company; and even that is now scarcely needed, for the credit of the C. W. & Z. R. road has become so well established as to require no endorsement. The subscription is now principally valuable to the C. W. & Z. R. road as a pledge of the cordial feeling entertained for it by the Central company. We trust you will ratify the contract.

With the Columbus and Xenia company, and under the concurrence of the Xenia and Dayton railroad company, we have made a very important contract. It authorises the transmission of the traffic of or for the Central road over the Columbus and Xenia and Xenia and Dayton roads, in our own cars, either by regular or special trains at the same rates as may be charged for their own proper traffic, and making also proper deductions from those rates for the use of our machinery employed in its transportation.* This amounts to a practical extension of the Central road to the city of Dayton. We shall doubtless be able to make a similar contract with the Little Miami or Cincinnati, Wilmington and Zanesville road, and if a like contract be made with the Cleveland and Pittsburgh and Ohio and Pennsylvania road, there will be a symmetry and completeness in our business arrangements such as but few roads in Ohio will be able to boast. It would enable us to run our express trains between Pittsburgh and Cincinnati, a distance of three hundred and twenty-nine miles in ten hours or less.

We have contracted with the Scioto and Hocking valley and the Mansfield and Sandusky city railroad companies, for the purchase of grounds at Newark, and the construction of station buildings on joint account. The facilities for transfer which this arrangement will enable us to make, will be very advantageous. Connection with the Sandusky interest is already an important one, and the opening of the Scioto and Hocking valley road to the Jackson county iron mines, if attended with no other beneficial results, would furnish over our road in part, to the rolling mills and the various other establishments using pig iron at Zanesville, Columbus and elsewhere, along the line, a delivery so much cheaper than they have heretofore had, as to place them on an equality, at least with the iron manufactories of Wheeling and Pittsburg. With that road complete, pig iron from the Jackson mines would be delivered in Zanesville at a cost of $2.50 per ton; a saving of $1 50 over the present lowest rates and $1 00 per ton less than the Hanging Rock metal is delivered in Pittsburg. Under this view of things, with iron, coal and cost of living, all cheaper in our neighborhood than at Pittsburg, capital would not hesitate at investment in manufactories along the line of our road, furnishing as it will, facilities to an extended and expanding market.

For the Directors,
J. H. SULLIVAN, Pres't.

ZANESVILLE, *August* 1853.

Exhibit of expenses and resources of the Central Ohio Railroad Company, to August 20th, 1853.

EXPENDITURES ON WESTERN DIVISION.

For construction.....	$573,618 02	
Superstructure.....	400,959 12	
		$974,577 14
Right of Way.....	20,119 35	
Depot grounds and buildings, at Newark and Columbus.....	16,318 09	
Temporary buildings, W. Zanesville.....	1,053 55	
Wood Sheds and Water stations.....	1,390 91	
Office furniture.....	667 84	
Contingencies.....	8,503 80	
Salaries up to January 18th, 1853,.....	14,986 44	
Discount on bonds, less premium on exchange.	56,211 02	
Balance of interest less road receipts to January 18th, after deducting expenses of construction trains.....	78,628 55	
		197,939 55
		1,172,516 71

*This arrangement of course is reciprocal.

EXPENDITURES ON EASTERN DIVISION.

For construction	$540,540 99	
Superstructure	13,193 10	
		553,734 09
Right of way	91,284 09	
Engineering	86,508 15	
Discount account	43,703 89	
Interest	22,409 91	
Real estate (including depot grounds Zanesville)	36,343 58	
		280,249 62

EXPENDITURES COMMON TO BOTH.

Machine shop grounds and improvements, West Zanesville	33,288 18	
Stationary machinery	6,145 82	
Machinery	223,842 50	
		263,276 50
Total expenditures		2,219,776 00
Resources on hand		619,862 34
		2,839,639 24

RESOURCES ORIGINAL AND PRESENT.

Capital stock Western Division	$507,799 24
" " East "	958,840 00
Mortgage bonds west "	450,000 00
" " East "	800,000 00
Income bonds	100,000 90
Surplus real estate	23,000 00
	$2,839,639 24

NOTE.—The unexpended resources of the company consist of bills receivable west $5,174 68
Bills receivable east 62,049 02
Unsettled Accounts east 21,974 37
" " west 28,922 05
Income bonds 100,000 00
Due on stock 314,568 16
Bonds in hands of C. Brooks 148,000 00
Cash in treasurer's hands. 18,414 89
Surplus real estate 23,000 00
722,042 67
Less the present floating debt of the company 102,180 32
Balance $619,862 34

Small Rails.

THE SUBSCRIBERS manufacture and keep constantly for sale, *Light Rails* of the most approved patterns, weighing 22, 25, 28, 40 and 50 lbs per yard, suitable for Colliers, Miners, Quarrymen and Contractors, or for turn outs, depot and branch tracks. CHARLES E SMITH & Co.
1744 Fairmount Iron Works, Philadelphia.
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Brunswick Iron Works.

WEDNESBURG, ENGLAND.

TYRES, AXLES, WHEELS, *and all kinds* of Railway equipment of the Brunswick Iron Company's manufacture. Orders received at the office of the Agency, No 55 William street, New York. 44tf GEO. W. BILLINGS.

A Valuable Farm in Illinois for Sale.

SITUATED in the *Village* of *Seward's Point* in *Montgomery* County 7½ miles North of *Hillsborough*, about 36 South of *Springfield* the Capital of the State, about 18 West of the *Illinois Great Central Railroad*, about 4 or 5 North of the *Alton & Terre Haute Railroad* and about 18 miles West of the *intersection* of the two, containing 80 acres of rich prairie land.

Apply by letter or in person to
S. S. ROCKWELL,
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CIVIL ENGINEERS,
Rooms 22, 24, 26 & 27,
157 Broadway, New York.
CHARLES B. STUART, EDWARD W. SERRELL,
DANIEL MARSH, SAMUEL McELROY.

HENRY TANNER vs. *the Hudson River Railroad Company.* — Circuit Court of the United States for the Northern District of New York.

THIS was a suit brought by the plaintiff for an alleged infringement of letters patent granted to him as assignee of the inventors, L. H. THOMPSON and A. G. BACHELDER: 'for an improved Railroad Brake', by the use on the said road of brakes made on plans, alleged to have been invented by NEHEMIAH HODGE and also by H. A. STEPHENS and purchased by the said defendants, from the said Hodge & Stephens and also for use of the plan as patented to said Tanner.

The suit was noticed for trial at the October term of 1853, and put over the term by the motion of Defendant's Counsel by paying the costs of the term.

And thereafter the Defendant's Counsel made overtures for a settlement which resulted in the defendant's acknowledging the validity of plaintiff's patent, the infringement of the said patent by the use of double acting brakes on the plan of the said patents &c., and the Company paying to the said plaintiff for the right to use the said invention and for the withdrawal of said suit the sum of ONE THOUSAND DOLLARS and costs.

Having read the above I do certify to the correctness of the statements therein contained.

October 25th, 1853.

THOMAS M. NORTH,
Secret'y and Attorney of the
Hudson River R. R. Co.

New York, October 26th, 1853.

This is to certify that I was of Counsel for the plaintiff in the above entitled cause, that the suit was brought for the recovery of damages from the Hudson River Railroad Company for the use on their cars of brakes, made on the plans described in the patents granted to Charles B. Turner on the 14th, of Nov. 1848, to Nehemiah Hodge on the 2d, of October 1849, and to H. A. Stephens on the 25th, of November 1851. That in preparing for the trial of the above entitled cause I made a careful examination of all the facts, given in the notice of defence and became satisfied that Thompson and Bachelder, from whom Tanner derived title, were the original and first inventors of the Double acting Brake covered by the plaintiff's patent and that the Brakes of Turner, of Hodge, and of Stephens are infringments of the said Tanner's patent. CHS. M. KELLER.

AUCTION NOTICE.

BY

Haggerty, Jones & Co.

MONDAY, OCTOBER 31,

AT THE AUCTION ROOM, 54 WILLIAM ST., COR. PINE.

PEREMPTORY SALE

OF

RAILROAD IRON,

IN BOND,

FREE OF ALL CHARGES, EXCEPT DUTY, now landing at the Atlantic Dock. Brooklyn, made by one of the first makers in England, and equal in quality to the best Welsh Rails. Quality guaranteed, bars straight, sound, and free from flaws and cracks, and cut off square at the ends. Tons, 1,113,18,0,15, consisting of 6,565 bars, viz: 3925 of 21 feet, 2208 of 18 feet, 377 of 15 feet, and 55 bars of twelve feet in length, weighing about 58 lb. per yard, of the pattern known as the Erie Railroad Pattern. Sample of the quality can be seen at our office, and the whole for inspection at the Atlantic Dock.

TERMS OF SALE.—Ten per cent. on the day of sale, and, if required, the balance half in 15 and half in 30 days, with interest, the transfer to be made when paid for.

ALSO,

A similar quantity, and of the same quality as the above, on a credit of three and six months, with interest for notes satisfactory to the sellers, less 15 per cent in cash on day of sale.

To Contractors.

CHIEF ENGINEER'S OFFICE, N. & P. R. R. Co.,
Norfolk, Oct., 13, 1853.

SEALED PROPOSALS will be received by the undersigned at this office from the 3d, until the 15th day of December next, at noon, for the *graduation and masonry of 62 miles* of the Norfolk & Petersburg railroad between the city of Norfolk and *Warwick Swamp in the county of Sussex.*

The line will be divided into sections of about 4 miles, and bids will be received for one or more of said sections.

Maps and profiles of the line will be ready for inspection and specifications with forms of proposals may be had of the undersigned on and after the first day of December.

Payments will be made in current money during the progress of the work in proportion of four-fifths of the amount due.

As soon as practicable after the examination of the proposals, those to whom the work will be allotted will be duly notified, and if deemed necessary required to give bond with satisfactory security for an amount not exceeding one-tenth of the amount of work to be done.

The company reserves the right to accept such proposals as in their judgment will secure the prompt and faithful execution of the work according to contract, or reject all, if none are satisfactory.

The line is easy of access, the country through which it passes is of mild climate and abundant in supplies. *Postage on all communications must be prepaid.*

W. MAHONE,
Chief Engineer.

Railroad Iron.

2,000 TONS FIRST CLASS WELSH RAILWAY IRON, to be made to any ordinary T pattern required by the buyers, and for shipment from Newport, Wales, in December, January, and March next, apply to the undersigned, for many years connected with the largest house in the trade JOHN H. AUSTIN & CO.,
44tf 2 Ingram Court, Fenchurch street London.

To Contractors.

PROPOSALS will be received till sunset Nov. 21st for the Graduation, Masonry, and Superstructure of the CLINTON LINE EXTENSION RAILROAD from Hudson to its intersection with the Mad River Railroad, a distance of about one hundred miles. The route occupies a perfectly healthy country, thickly inhabited, and accessible at all points.

Also, at the same time, for the construction of the portion of the Clinton Line Railroad not under contract extending to the Ohio and Pennsylvania State Line.

Specifications, Maps and Profiles will be ready for examination ten days before the letting at the Engineer's office in Hudson.

H. N. DAY, President.
W. B. BRINSMADE, Chief Eng'r.
Hudson, Ohio, Oct. 10th, 1853.

Book and Job Printing.

The undersigned have added to the PRINTING ESTABLISHMENT of the "RAILROAD JOURNAL," an extensive OFFICE for *BOOK AND JOB PRINTING*, which they are now prepared to execute in the BEST manner, and with DISPATCH. They respectfully solicit from RAILROAD COMPANIES, orders for the PRINTING of *Exhibits Time-tables, Circulars, Tickets, &c., &c.*

J. H. SCHULTZ & CO.

New York April 9, 1853.